Vol. X. APRIL, 1930. No. 40

The Journal of Neurology and Psychopathology

Edited by

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ISSUED BY THE BRITISH MEDICAL ASSOCIATION

London: British Medical Association House,
Tavistock Square, W.C. 1.

Published Quarterly. Subscription 30/- per annum. Single Numbers 8/6 net. Post Free.

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Pp. 536. 18s. net.

OXFORD UNIVERSITY PRESS
Humphrey Milford Amen House, London, E.C.4

THE JOURNAL OF NEUROLOGY AND PSYCHOPATHOLOGY

Vol. X. APRIL, 1930. No. 40.

Original Papers.

LATE FORMS OF FAMILIAL PROGRESSIVE MYOPATHY.*

By

KNUD H. KRABBE, Copenhagen.

It is of interest to study the variations of age at which the different heredofamilial diseases begin. For some of these the age of onset is a phenomenon of a certain importance in diagnosis—in Huntington's chorea, for instance.

As regards the progressive myopathies we know that not rarely their initial stage may date back to fœtal life. It seems probable that a number of cases called 'amyotonia congenita' have not really been examples of this disease, but congenital heredofamilial myopathies. Moreover the myopathies may have their beginning in early childhood, in later childhood, or in youth.

Exceptionally the disease sets in after the age of 20 years, and after 30 years it is still more rare. From the literature I have collected some cases of late progressive myopathy in which the symptoms have developed after the age of 30. It is interesting that in the greater number there is no history of familial disease. Erb has shown that in about 50 per cent. of cases of progressive myopathy in childhood and youth there may be found similar instances in the family. In two of the published cases, however, the late myopathy seemed to be undoubtedly hereditary.

CASES FROM THE LITERATURE.

Sézary, Chenet and Jumentié showed in 1909 at the Société de Neurologie of Paris a patient whose father had suffered from a progressive muscular dystrophy of the scapulohumeral type, beginning at the age of 30. The patient himself began, when he was 60 years old, to complain of increasing loss of power of the shoulder muscles, and after some time developed atrophies and pareses of the humeral and shoulder muscles on both sides, while forearms, hands and lower limbs were not affected.

* From the Neurological Department of Kommunehospitalet in Copenhagen (Chief Director, Professor Aug. Wimmer)

In the case of Joffroy and Achard (1889) the brother of the patient had a paraplegia but no atrophy of leg muscles. The case is, however, somewhat uncertain. The patient, a woman aged 55 years, had been infected with syphilis in youth and she had suffered from pains in her legs, so that the possibility must be considered that the condition in reality was one of spinal syphilis.

Besides these two, in which the heredity of the disease was more or less probable, there may be found in the literature about twenty isolated cases.

Landouzy and Dejerine published in 1886 a case of myopathy in the shoulder- and arm-muscles, later in the facial muscles, which began when the patient was aged 40. Frohmaier (1886) observed a slow progressive myopathy with localisation in the shoulders and upper part of the arms. The patient was 58 years old and appeared to have suffered from the disease for about 20 years. Sacara-Tulbure (1894) described the case of a man, aged 49, in whom from the age of 41 a myopathy developed, with pseudohypertrophy, involving proximal muscular groups only. Lensmayer (1894) observed a septuagenarian patient who had developed, four years before, a feeling of feebleness in the legs. Palsies and atrophies of the proximal muscles developed, and pseudohypertrophy of the deltoids. Vannier (1895) wrote a thesis in which he collected a great number of cases of the Charcot-Marie-Tooth form of progressive myopathy. Among his personal observations is a case which started when the patient was 35 years old; another patient, aged 50 years, had suffered from the myopathy from the age of 30; and the third, aged 51 years, had been affected only three years before.

Oppenheim and Cassirer (1897) published the description of a patient, a labourer aged 42 years, who had suffered during two years from pains in the legs and paræsthesiæ in the fingers. During a certain period there had been psychical disorder, and it was remarked that the patient, whose atrophies were most marked distally, was very pale. From a modern viewpoint it seems not improbable that the patient suffered from an anæmia-myelopathy. Werdt in 1911 published two cases in which histological examination had been made, showing characteristic signs of pseudohypertrophy. The first patient was 64 years old, and she had suffered from the disease "for several years," with increase of the symptoms latterly. The other patient was a woman aged 74 years; her muscular atrophy had begun in her 50th year. Farnel's case (1911) was that of a woman with progressive myopathy of Charcot-Marie-Tooth type, developing from the age of 43. Cottin and Narville gave in 1912 a description of the case a woman aged 47 years. The first sign of disease possibly dated back to the age of 27, but it was not before the age of 41 that marked paralyses appeared, with pseudohypertrophy localized to the distal part of the four extremities. Orbison described (1914) a series of myopathies, two of which were late. (i) Woman, coloured, aged 38 years. About seven years ago she noticed inability to run quickly. Later, her back became

weak. She exhibited difficulty in flexing the thighs against pressure and there was marked lordosis. (ii) A man, aged 56 years, in whom the disease had developed a year earlier after a serious railway accident (this case does not seem a true progressive muscular dystrophy). A case of Simon and Aron, in which the myopathy was unilateral and localised in the fore-arm in a tuberculous patient, aged 43 years, seems somewhat doubtful. Viggo Christiansen presented in 1925 at the Neurological Society of Copenhagen a woman, aged 56 years, suffering from a progressive muscular dystrophy, but no description of the case has been published.

Finally we shall mention some cases in which the myopathy developed after trauma.

Erb described in 1891 a case of progressive muscular dystrophy in a man aged 41 years. At the age of 34 he had received a severe trauma. Eighteen months after this, an increasing weakness of the shoulder developed, accompanied by atrophy of some muscles, and pseudohypertrophy of others.

A. Hoffman gave in 1904 a description of a patient aged 43 years who had suffered, two years before, from burns of the arms and back. From that time an increasing weakness of the upper part of the arms and the dorsal muscles developed. He presented the picture of a juvenile myopathy with severe atrophy of the trapezii, erectors of the spine, humeral, gluteal and femoral muscles. Finally Caussade and Abel observed a man, aged 39 years, who had fallen from a height of three metres and hurt his right shoulder. After that a progressive muscular dystrophy of the scapulohumeral type developed, beginning in the right arm and spreading to the left.

It is probable that these traumatic cases have a different pathogenesis from the true heredofamilial abiotrophies. It is also possible that some described have been atypical cases of amyotrophic lateral sclerosis, spinal syphilis or anæmia-myelopathy. But excluding these possibilities there is no doubt that a certain number have been true progressive muscular dystrophies, beginning at rather an advanced age.

I have had occasion to examine two sisters (one of them in a detailed manner, the other rather cursorily) in whom progressive myopathy had begun at the age of about 45 years. The histories are as follows.

PERSONAL CASES.

CASE 1.

V. S. G., born March 11, 1879, unmarried, admitted to the Department for Nervous Diseases of Kommunehospitalet (city hospital) of Copenhagen on January 8, 1928.

Her sister, aged 50 years, whose history is mentioned below, suffers from a similar condition of the lower limbs. Apart from this, no familial history; her father died from cerebral arteriosclerosis.

In her childhood she had had measles, scarlet fever, and whooping-cough. She denies diphtheria, rheumatic fever, and syphilis. Menstruation began at the age of 13 years, and ceased one year ago.

Her *present illness* developed insidiously some five or six years ago with weakness of the legs. She became inclined to limp, sinking down on the right side and giving way at the ankles. Sometimes she fell. The condition grew worse, so that she was not able during recent years to walk without the support of a stick or the furniture of the room. If she tried to walk for longer than a quarter of an hour she would fall. She never experienced pains or paræsthesiæ in the legs and apart from their feebleness she felt absolutely well; she had no headache, giddiness, nausea, visual trouble or disturbance of micturition. During the last year or two she was sometimes affected by an indefinite feeling of anxiety when she was about to sleep. The progress of the disease was steadily insidious without periods of either improvement or arrest.

Examination of the patient revealed the following signs.

The patient was rather well nourished. Optic discs normal. Pupils equal, reacted well to light and convergence. Eye-movements normal. No facial or tongue paresis; speech natural. Throat reflex absent. Upper limbs normal as regards joints, tonus, power, muscular nutrition, co-ordination, reflexes and sensibility. Thyroid gland rather full but of normal consistence, not pulsating.

Examination of lungs and heart normal. Nothing abnormal by palpation of abdomen. The spine showed a very slight sinistro-convex scoliosis of its dorsal part and on the whole a limited mobility. Abdominal reflexes very active. Umbilicus moved a little upwards when the patient sat up. No disturbance of sensibility.

Lower extremities: The trophic condition of the muscles was somewhat difficult to determine because there was abundant subcutaneous tissue. There did not seem to be any diminution in size of the muscles, but rather somewhat increased volume of the triceps suræ. Free mobility of the hip- and knee-joints; hyperflexibility of the ankle-joint. Tonus was normal for movements of the knee-joint, diminished for movements of the ankle-joint. Power of femoral muscles very good. There was a considerable paresis of all the calf muscles, both in dorsal and volar flexion, in pronation and supination of the foot. The power of movement of the toes was diminished, but it seemed relatively better than that of the calf muscles. The pareses were symmetrical. Knee-kerks and ankle-jerks were completely absent, even when reinforced. Plantar reflex very feeble on the right, absent on the left side. Sensibility for touch and pain was diminished on the feet, the hypæsthesia decreasing upwards on the legs. Sense of position normal. No ataxia in knee-heel test and no instability of the raised extremities. During Romberg's test she repeatedly fell backwards. She walked with careful steps, holding her feet together, but moved her toes normally when walking. There was scarcely any drop-foot.

Electrical examination of the calf-muscles showed considerable quantitative diminution and slow contractions, but no qualitative modification. It proved somewhat difficult because of the abundant subcutaneous fat.

The skin of the upper and lower limbs was dry and scaly, with keratosis pilaris. There were numerous pigmented nævi on the back, and some on the arms. When she stood up her feet became cyanotic.

By lumbar puncture there was evacuated 4 c.c. of limpid uncoloured fluid, containing 2—7 cells per c.mm., 10 albumin, and no globulin (Ross-Jones-Bisgaard's method). Wassermann reaction and Sigma reaction in spinal fluid and serum were negative. Blood-pressure 120 systolic, 80 diastolic. Erythrocytes, 6,660,000. Urine contained nothing abnormal. X-ray examination of the spine from D9 to L5 revealed no abnormality, nor did examination of the joints of the feet. By X-ray, however, it was seen that the triceps suræ was rather voluminous and that the calf muscles exhibited a peculiar spotted appearance. The radiologists supposed that it was caused by the feeble shadow of the degenerated muscles in contrast with that of the interstitial tissue,

A test-excision of a piece of the left gastrocnemius was performed. When the fascia was opened, the muscle showed the aspect of pure adipose tissue, with some fibrous infiltration; and although the cut in the muscle was very deep all the tissue showed the same appearance. A small piece of the muscle was excised and microscopical examination revealed only adipose tissue, with some large veins, but without muscular substance.

During the patient's stay in the Department her pulse and temperature were normal, apart from a little increase of temperature on one day. Sleep and appetite were good. She gave the impression of being somewhat unintelligent, but otherwise she did not present any psychical abnormality. (A cousin of the patient supplied the information that she had been always a little 'imbecile').

From the Kommunehospital the patient was transferred to the Almindelig Hospital (Infirmary of Copenhagen). Her physician informed me in January 1930 that her condition had not changed since.

CASE 2.

The sister of the patient, D. G., aged 50 years, was not admitted to hospital but she allowed me to make a short examination in March 1928. She said that during the last three years she had suffered from increasing feebleness in her legs, soon grew tired when she was walking, and was unable to run. She had no pains in her legs, and apart from the weakness she felt absolutely well and could do some work when it was not too hard.

Examination of her legs showed that the calf-muscles were flaccid, but rather voluminous. The power of dorsal-flexion of the feet was very poor, and she was only able to stand on tip-toe for a moment. Knee-jerks and ankle-jerks were absent and there was no disturbance of sensibility.

COMMENT.

When we consider these two cases, there seems to be no doubt that the first represents a progressive muscular dystrophy, beginning at the age of about 45 years. It is probable that the sister is suffering from the same disease.

There are a few points of the history which must be mentioned.

It is curious that the biopsy showed that the 'muscular' piece from gastrocnemius only consisted of adipose tissue, although there was no absolute paralysis of plantar-flexion of the foot. Probably the explanation is that only a part of the gastrocnemius-muscle has degenerated, and that the soleus-muscle is in a better condition.

The case does not belong to any definite type of myopathy. It differs from the Charcot-Marie-Tooth type by the pseudohypertrophy of the calf muscles, and it differs from most of the juvenile pseudohypertrophic types by the distal localisation of the muscular degeneration and the slight disturbances of sensibility.

A point of a certain interest is the curious finding of the X-ray pictures. At any rate, there is surely reason to make X-ray examination (by soft tubes) in many cases of myopathies, such pictures being able to furnish information concerning the condition of the muscles.

Apart from these features the described cases are rare because of the late development of the muscular pseudohypertrophies.

REFERENCES.

CAUSSADE, L., and ABEL, E., "Dystrophie musculaire à type myopathique post-traumatique chez un adulte," *Rev. méd. de l'Est*, 1922, l, 65.

CHRISTIANSEN, V., "Dystrophia musc. progress. hos en 56-aarig kvinde," *Neurologisk Selskabs Forhandlinger* 25 *Nov. Hospitalstidende* (Copenhagen), 1925.

COTTIN, E., and NAVILLE, M. F., "Myopathies tardives à début périphérique," *L'Encéphale*, 1912, vii (i), 401.

ERB, W., "Dystrophia muscularis progressiva," *Deuts. Zeits. f. Nervenheilk.*, 1891, i, 13.

FARNEL, F. J., "Cas de dystrophie musculaire du type Charcot-Marie," *Jour. Nerv. Ment. Dis.*, 1911, xxxviii, 234.

FROHMAIER, "Ueber progressive Muskelatrophie," *Deuts. med. Woch.*, 1886.

HOFFMANN, AUG., "Juvenile Muskeldystrophie bei einem älteren Manne nach Trauma," *Münch. med. Woch.*, 1904, 1027.

JOFFROY and ACHARD, "Myopathie primitive débutant à l'age de 55 ans chez une femme hystérique et syphilitique," *Arch. de méd. exp. et d'anat. path.*, 1889, i, 575.

KRABBE, KNUD H., "Congenital familial spinal muscular atrophies and their relation to amyotonia congenita," *Brain*, 1920, xliii, 166.

LANDOUZY, L., and DEJERINE, J., "Nouvelles recherches cliniques et anatomo-pathologiques sur la myopathie atrophique progressive," *Rev. de méd.*, 1886, 977.

LENSMAYER, L., "Fall von Dystrophia musc. progr. juvenilis bei einem 71 jährigen Manne," *Wien. klin. Woch.*, 1894, 540.

OPPENHEIM, H., and CASSIRER, R., "Ein Beitrag zur Lehre von der sogenannten progressiven neurotischen Muskelatrophie," *Deuts. Zeits. f. Nervenheilk.*, 1897, x, 143.

ORBISON, THOMAS J., "Myopathy with clinical records of eight cases comprising various types," *Amer. Jour. Med. Sci.*, 1914, cxlviii, 550.

SACARA-TULBURE, "Contribution à l'étude clinique de la paralysie pseudo-hypertrophique," *Rev. de méd.*, 1894, xiv, 273.

SÉZARY, CHENET and JUMENTIÉ, "Myopathie du type juvenile d'Erb ayant débuté à 60 ans," *Rev. neurol.*, 1909, xvii, 1528.

SIMON and ARON, "Sur un cas curieux de myopathie primitive atrophique," *Rev. méd. de l'Est*, 1919, 60.

VANNIER, EDOUARD, "Amyotrophie Charcot-Marie chez l'adulte," *Thèse de Paris*, 1895.

WERDT, F. v., "Zur Histologie der Dystrophia musculorum progressiva," *Korresp.-Bl. f. Schweizer Ärzte*, 1911, xli, 1057.

A CASE OF DECEREBRATE RIGIDITY WITH AUTOPSY.*

By

SAMUEL H. EPSTEIN, Boston,

and

PAUL I. YAKOVLEV, Palmer, Mass.

Decerebrate rigidity was first described by Sherrington[1] in 1896. His work was concerned solely with laboratory animals, and it was not until 1919–1920 that this syndrome was described in man. At about the same time, Walshe[2], Wilson[3], and Cobb[4] reported clinical cases illustrating the phenomenon of decerebration. Since then numerous publications have appeared, and the more recent reports giving references are those of Weisenburg and Alpers[5] and Zand[6]. The case herein reported was discussed with Professor Stanley Cobb, who supervised the histological work and aided in preparing this case for publication.

CLINICAL REPORT.

The patient was a male child, the youngest of nine children, born February 15, 1919, at eight months' pregnancy and after a long difficult labour. His paternal uncle was feebleminded. Otherwise the family history was negative. The child was blue at birth and remained blue for six weeks. A few hours after birth the first convulsion occurred. Thereafter he had convulsions almost every day. These were generalized, beginning with retraction of the head and protrusion of the eyeballs and followed by rigidity of the arms, clonic movements of the extremities, frothing at the mouth and cyanosis. The patient was said to be exceedingly nervous. "If someone would knock at the door or a dog would bark he would stiffen all over." Any noise would start a spasm. He had no illnesses in childhood, but he did not develop normally; he never sat up, never walked or talked; he had no control of his sphincters.

The patient was admitted to the Monson State Hospital on September 22, 1921, at the age of two years and seven months. He died there at the age of eight years and three months, on May 20, 1927. On admission a diagnosis of epilepsy with mental deficiency was made. At that time physical examination showed a well-nourished boy, mentally below par. His height was 31 inches; weight 21 pounds. Head measurements were: circumference 16 inches; transverse arch 9 inches; glabella to inion 10 inches. The skin was clear and very dry. On the sacral region there was a pigmented spot with a growth of long hair. There were no skeletal deformities. Examination of eyes, nose, ears, mouth and throat was negative. Heart, lungs and abdomen were normal. Patient could not sit, stand or walk.

* From the Department of Neuropathology, Harvard Medical School, and the Monson State Hospital, Palmer, Mass., U.S.A.

He came under the observation of one of us on December 4, 1926, at the age of seven years and ten months. At this time neurological examination was made and revealed the following condition.

Patient lay in bed in a rigid state with the head strongly retracted. The lower limbs were extended, adducted and crossed in scissors-like fashion; knees were slightly flexed, ankles extended, and toes in plantar flexion. The upper limbs were flexed and internally rotated; wrists were pronated, fists closed with the thumbs usually between the first and second fingers. There was very slight spontaneous movement of the legs, and only slight flexion and extension of the knees. The spontaneous movements of the lower limbs were more varied, viz., flexion and extension of the elbows and abduction of the arms. There were also frequent spontaneous movements of the head. Movements of the upper limbs usually occurred simultaneously with the movements of the head. If the head was rotated to one or the other side, the extremity towards which it was rotated (maxillary extremity) would become extended, slightly abducted and internally rotated, and the opposite extremity on the side of the occiput (cephalic extremity) would become flexed. His favourite position of head and arms was, head turned to the right, left arm flexed upon the chest so that the hand came under the chin, and right arm semi-flexed and reposing on the epigastrium. If the patient was lifted into the air on one hand he remained rigidly extended like a block of wood.

A peculiar general motor reaction could be produced by sudden external stimuli. Among these, auditory stimuli such as a blow on a table nearby, sudden clapping of hands, wrinkling of paper, were especially prone to produce this reaction. It was absolutely constant and uniform, and consisted of the following motor responses: Muscular rigidity, retraction of the head and opisthotonos became accentuated; the arms became extended, internally rotated and abducted in a spasmodic manner; the legs were also abducted and extended, sometimes drawn up on the torso, and sometimes there was only extension and flexion of the knees.

Along with these phenomena there was a spasm-like movement of the face, the resulting expression resembling that of an angry or frightened chimpanzee. The lower jaw was protruded forward, the mouth closed, the lower lip everted and the corners of the mouth retracted downward and outward; the eyebrows were raised, eyes opened wide and pupils were dilated. All this was accompanied by deep inspiration and a short period of apnoea, sometimes with flushing of the face.

In addition to this general motor reaction caused by external stimuli, especially auditory, certain local motor reactions could be elicited by local stimuli applied to the skin. If the skin of the ankle were pinched, a local motor reaction would follow, consisting of slight dorsiflexion of the ankle, slight external rotation of the thigh, sometimes a drawing up of the whole leg and occasionally extension of the contralateral leg. These local motor reactions were moderate in intensity and were not quite constant.

The tendon reflexes were all present, equal, but small in range. The response to plantar stimulation consisted of a slight extension of the big toe with occasionally spreading of the other toes. Stimulation of the abdomen produced contraction of the muscles of the stimulated side, giving the impression that the abdominal reflexes were present. The pupils were equal, regular and reacted to light; reaction to accommodation could not be tested. There was a slight divergent strabismus, but ocular movements were free in all directions. Fundi were normal in appearance.

There was generalized muscular rigidity. On palpation the muscles were hard and apparently in a state of semicontraction. Since the patient was emaciated, every muscle could be seen under the skin. On passive movement the rigidity could be readily appreciated. Resistance to passive movement was pronounced and increased with the force applied. The rigidity resembled the plastic, waxy type. If a leg was flexed at

the knee, it would maintain this position for a few minutes before returning to the original position of extension. There were no contractures, excepting in the flexor tendons of calves and flexors of toes.

Another feature of this patient's condition was the occurrence of 'crying spells.' They consisted of a deep inspiration, then a period of apnœa, when the face became very congested, then a cry with a long expiratory phase; simultaneously the whole body would stiffen out; and a few short respirations would end the spell. These fits were often induced by any unpleasant manipulations connected with various tests used in the examination.

COMMENT.

On the basis of the history and the physical findings it is apparent that we are here dealing with a case of cerebral infantile tetraplegia either of congenital origin or due to a lesion occurring during or immediately after birth. The neurological picture is obviously not of recent development but was present since infancy. The main clinical features may be discussed under four headings:

1. Attitude and postural reactions.
2. Muscle tonus.
3. Fits.
4. General and local motor reactions.

1. The patient's attitude was one of permanent extension with retraction of the head, which was maintained even if he was lifted up into the air on one hand. In addition he presented the definite postural reaction known as the tonic neck-reflex of Magnus and de Kleijn. These postural reactions exhibited remarkable constancy; they could be readily induced by passive movements of the head and were often reproduced by spontaneous movements of the head.

2. Muscle tonus was increased. The state of hypertonus was considered as rigidity, to be differentiated from spasticity or pyramidal hypertonus. In fact this case clearly illustrated the main intrinsic characteristics of rigidity. It was equally distributed in the flexor and the extensor muscles. The reaction of the antagonists was exaggerated. Finally, shortening and lengthening reactions were present. The rigidity was waxy, not elastic. Except for the scissors-like crossed legs, which it must be said developed at a later time, and for the faint plantar extensor response, the patient did not exhibit gross pyramidal signs.

3. Since birth the patient had had fits. These were apparently not all alike, but two types may be distinguished. In one type the patient would become rigid and cyanotic and apparently unconscious, then he would have a generalized convulsion with frothing at the mouth. In the second type, which was designated as 'crying spells,' his face would become congested, he would take a deep inspiration and then stiffen all over, but he did not shake and apparently did not lose consciousness. The first type of fit consisted of a tonic and clonic phase with loss of consciousness. The second type of fit consisted simply of the tonic phase without any obvious loss of consciousness. These were purely tonic fits and closely resembled those general motor reactions induced by external stimuli.

4. The patient exhibited motor reactions both general and local, when various external stimuli were applied. The general reactions resembled very closely the tonic fits, and could be produced by any sudden, intense external stimulus. These occurred with the greatest constancy and least provocation following auditory stimuli. In the local motor reactions the patient exhibited moderately exaggerated reflexes of defence, which were not so constant as the general reactions.

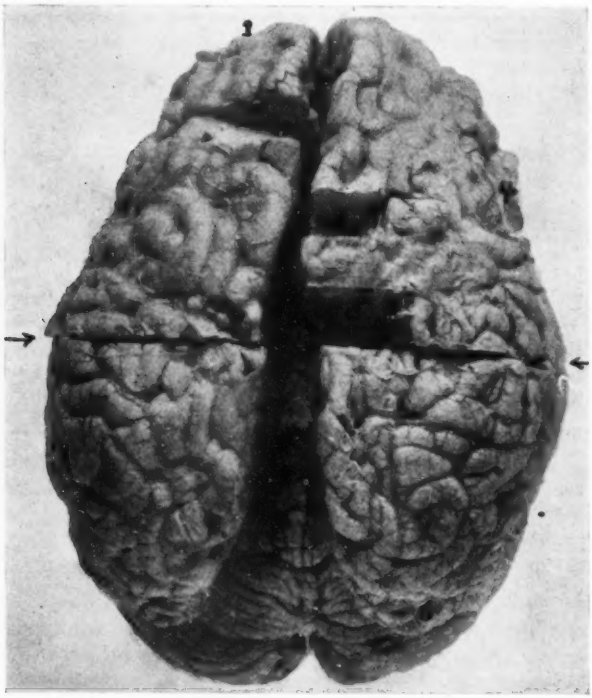


FIG. 1.—Superior surface of brain, showing microgyria and absence of corpus callosum. Arrow indicates level of coronal section shown in Fig. 3. Numbers show where specimens were removed for microscopic study: 1, frontal; 2, frontal; 3, motor; 4, low motor; 5, post-central; 6, area striata.

PATHOLOGICAL REPORT.

Gross Examination: The dura is thickened and moderately adherent to the cranium. The subarachnoid space is wide in many places, containing much fluid; in other places the pia-arachnoid is thickened and adherent to the brain surface, especially over the frontoparietal region and along the longitudinal fissure. The cerebral hemispheres are small with marked microgyria,

especially in the precentral region (Fig. 1). The frontal lobes are greatly reduced in size, making it difficult to distinguish landmarks and even the boundaries of the parietal lobes (Fig. 2). The corpus callosum is absent, allowing a direct communication between the third ventricle and the space between the occipital lobes and the cerebellum. On coronal section, the ventricles show marked dilatation (Fig. 3).

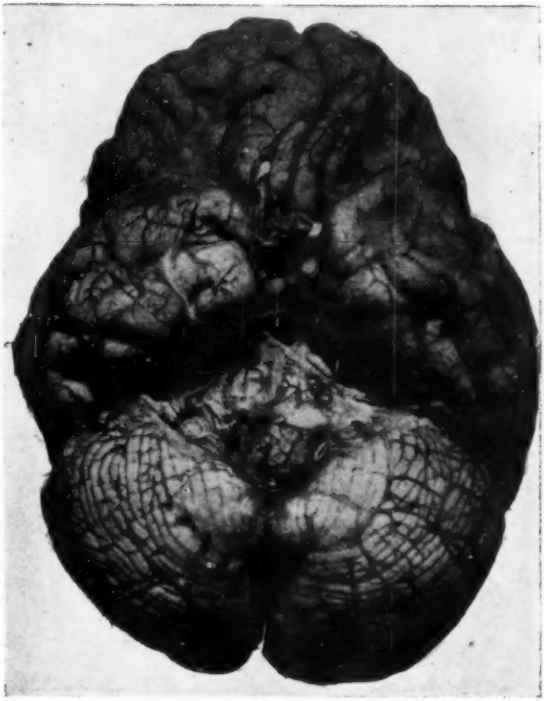


FIG. 2.—Inferior surface showing small asymmetrical frontal lobes, relatively large temporal lobes and cerebellum, and marked thickening of the pia-arachnoid.

Microscopic Examination: Sections (taken from the frontal, precentral, postcentral, temporal and occipital lobes, the cerebellum, basal ganglia, pons, medulla and spinal cord) were studied microscopically with the following stains: cresyl-echt violet, phosphotungstic acid hæmatoxylin (Mallory), hæmatoxylin and eosin, and Kulschitsky-Pal modification of Weigert's iron hæmatoxylin stain.

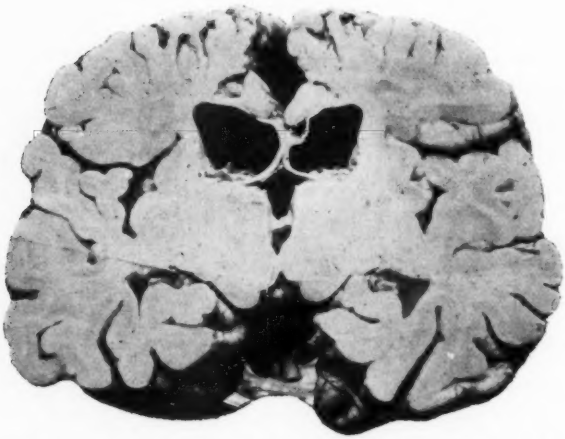


FIG. 3.—Coronal section (at level indicated in Fig. 1), showing the aplasia of the parietal lobes and the absence of corpus callosum. There is also a marked dilatation of the ventricles. Microgyria is conspicuous at the vertex.

FIG. 4.—Section of motor cortex (see Fig. 1, 3) showing narrow cortex, poor lamination and paucity of nerve cells. (Cresyl-echt violet stain).

In all sections of the cortex the cellular architecture is greatly disturbed, and the laminæ are difficult to distinguish. The cortical cells are reduced in number and replaced by glia. In the frontal cortex, laminæ 1, 2 and 5 are fairly distinct in some places, although they are very narrow. The nerve-cells are normal in appearance, but are arranged in a very disorderly fashion. In lamina 5 of the motor cortex there are a few large, elongated, darkly stained cells, but there are no normal Betz cells (Fig. 4). The streak of Gennari in the area striata is broken up into short pieces. Better architecture is seen in the

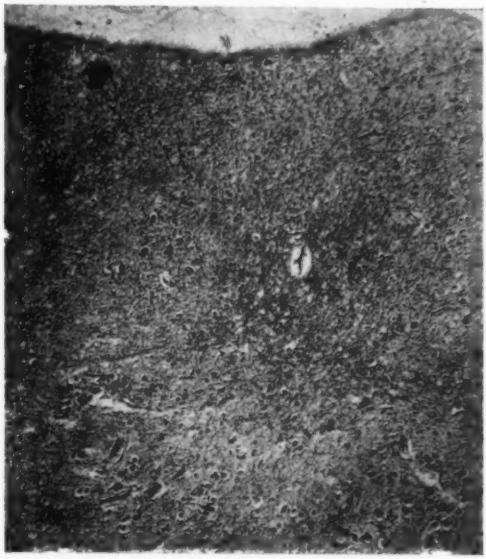


FIG. 5.—Section of motor cortex (see Fig. 1, 3), showing neuroglial proliferation and marginal gliosis. (Phosphotungstic acid hæmatoxylin stain).

postcentral and temporal cortex, but the great paucity of nerve-cells is striking. Ammon's horn cells are pale, and the layers are not clearly defined in all places.

Neuroglial proliferation is very prominent (Fig. 5). In some sections it is chiefly marginal, forming a felted network on the periphery ; in others, the glial fibres spread out irregularly into all the cortical layers (Fig. 6). The blood-vessels also are very conspicuous. There is great congestion and apparent increase in number of capillaries (Fig. 7).

The cerebellum shows considerable abnormality. The Purkinje cells are reduced in number and are arranged in an irregular fashion, large clumps of

cells in one place and a few isolated cells in another. The granular layer is smaller than normal and the outer molecular layer is relatively larger. There is moderate gliosis.

The basal ganglia also show lesions. Throughout the thalamus there is a fine network of fibres and an increase of glia nuclei. Around the small blood-vessels are areas of granular lilac-staining degeneration. In about the middle of the thalamus there is an area of degeneration, indicated by numerous scavenger cells loaded with myelin in the perivascular spaces. The caudate and lenticular nuclei show scarcity of cells, increase of glia nuclei and excess of capillaries.

FIG. 6.—Section of postcentral cortex (see Fig. 1, 5) showing severe gliosis obliterating cell structure and lamination. (Phosphotungstic acid hæmatoxylin stain).

The exact location of the red nucleus is difficult to make out. Cells are scarce. There is a moderate increase of glia nuclei. Around the small blood-vessels are areas of granular degeneration which are even more conspicuous here than in the thalamus. The substantia nigra shows a slight increase of melanin.

In the pons and medulla there is pronounced diffuse gliosis and a conspicuous excess of capillaries. Numerous granular areas are interspersed among the pyramidal fibres. The medullary nuclei are deficient in cells.

Sections of the spinal cord show a most striking picture. The grey matter appears normal, except for congestion of capillaries and many petechial hæmorrhages which are probably agonal in origin. The ventral horn cells are normal.

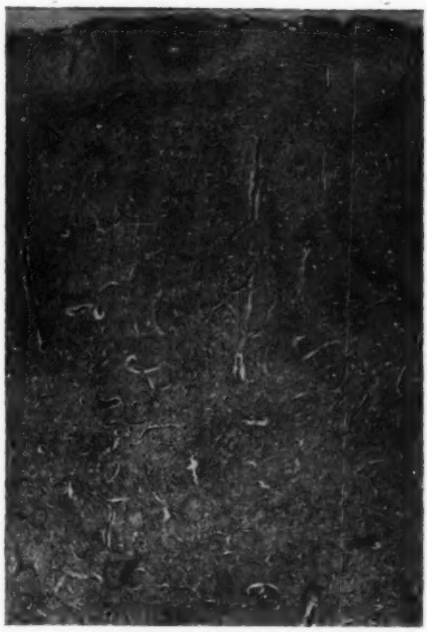


FIG. 7.—Section of frontal cortex (see Fig. 1, 1), showing great excess of capillaries. (Phosphotungstic acid hæmatoxylin stain).

FIG. 8.—Section of spinal cord showing extensive areas of unmyelinated fibres, especially in ventral and lateral columns. (Kulschitsky Pal-Weigert stain).

In the white matter are diffuse areas of demyelinization in the peripheral and the lateral and ventral columns, sparing the posterior columns and the ground-bundles, which appear normal (Fig.8). This lack of myelin is more obvious

in the cervical than in the thoracic region. In the latter the process appears to be limited to the lateral columns, chiefly the corticospinal tracts. In the cervical region all the tracts in the periphery of the cord show a great dearth of myelinated fibres. There is conspicuous fibrillary gliosis in the lateral columns in the region of the corticospinal tracts (Fig. 9).

Anatomical Diagnoses: Microcephaly and microgyria. Cerebral aplasia, with absence of corpus callosum. Aplasia of cerebellum. Aplasia of medulla. Aplasia of basal ganglia. Degeneration of red nucleus. Degeneration of thalamus. Diffuse gliosis. Corticospinal tract degeneration.

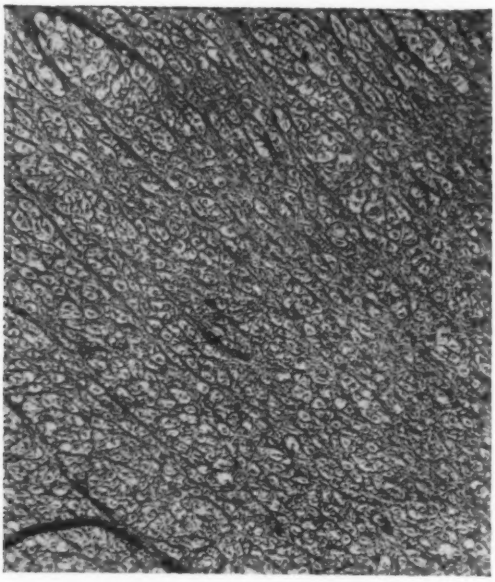


FIG. 9—Section from lateral column of spinal cord showing great fibrillary gliosis. (Phosphotungstic acid hæmatoxylin stain).

SUMMARY.

This case represents the clinical condition of decerebrate rigidity with tonic neck-reflexes of Magnus and de Kleijn, extensor rigidity, pseudo-affective reactions (hyperacusis), and tonic fits. Pathological study of the central nervous system revealed microcephaly and microgyria, agenesis and aplasia with secondary degeneration of the spinal tracts, diffuse gliosis, and degenerative lesions in the red nucleus and thalamus.

REFERENCES.

[1] SHERRINGTON, C. S., *Proc. Roy. Soc.*, 1896, lx, 411.
[2] WALSHE, F. M. R., *Brain*, 1919, xlii, 1.
[3] WILSON, S. A. K., *Brain*, 1920, xliii, 220.
[4] COBB, S., *Med. Clin. N. Amér.*, 1920, iv, 417.
[5] WEISENBURG, T. H. and ALPERS, B. J., *Arch. Neur. and Psych.*, 1927, xviii, 1.
[6] ZAND, N., *Jour. Nerv. Ment. Dis.*, 1928, lxvii, 105.

HUNTINGTON'S CHOREA WITHOUT CHOREIFORM MOVEMENTS.

By

DESMOND CURRAN, London.

The case recorded below came under observation because of symptoms which, although well recognised as quite characteristic in America, where this rare disease seems to be relatively more common, appear for all that to have received scant recognition in this country. Moreover, several of the relatives of the patient have been afflicted in a way which might have made recognition difficult had British text-books alone been consulted. Here few references are made to the possibility of mental symptoms preceding motor, or even, on occasion, holding the stage alone.

PERSONAL CASE.

I. T., a married woman, aged 37, was admitted to the Maida Vale Hospital in May, 1929. She was brought up because of inability to look after her home affairs and of indistinctness of speech.

There was in addition a remarkable family history of others similarly affected.

History of present illness.—Patient was quite normal until 18 months previously, when, just before the birth of her youngest child, she seemed at times thick in her speech, and became apathetic and "different." Since then marked changes in her personality took place insidiously and progressively. She gradually lost interest in life, spent long hours "gaping out of the window," and her husband volunteered that she had "changed into a cantankerous old woman." She had become dirty in person, and neglectful of her house and children. She lay long hours in bed of a morning. She had become both critical and intolerant of criticism; at times she was "very contrary" and would fly into a tantrum when rebuked. She had on occasion boasted in rather a grandiose manner, especially of her own home and upbringings, but had never expressed any definite delusion. Her registration of passing events had become poorer, and she had become incapable of sustained application.

Overshadowing all appeared to have been a progressive loss of her normal interests and outlet for energy. She had shown no insight, and had predominantly been very content with herself and (lack of) doings.

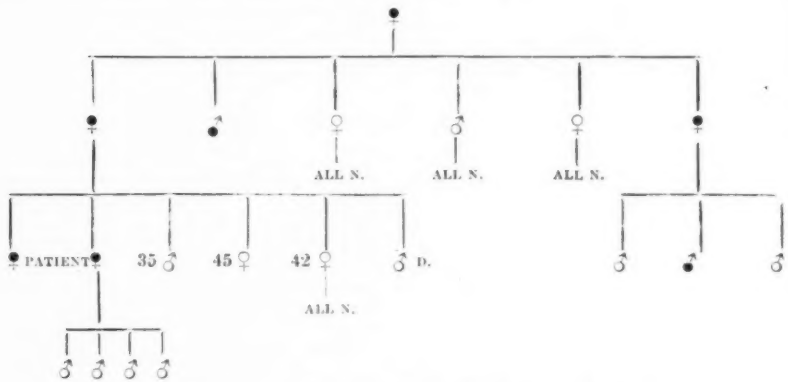
In addition to these mental changes, her speech had become progressively more slurred, and this, combined with a growing tendency to ramble in her talk, had on several occasions led to the suggestion that she was drunk. Moreover, she had at times appeared rather clumsy in her gait.

On no ocasion had any involuntary movement been seen.

Past history.—Previously she was said to have been bright and care-free, and "full of life and go." She was always considered perfectly normal, though possibly not very clever (her school record was not below the average), and her physical health had always been very good. She had been married about 10 years, and had four children (sons) all healthy. There had been no miscarriages.

State on admission.—Her condition was filthy and verminous. She was rather thin, but of quite good physique. There was no evidence of system disease. Her teeth were, however, very septic. There was some slight tremor about the lips. Her speech was markedly dysarthric and very monotonous. Examination of the central nervous system was otherwise quite negative. The tendon reflexes were possibly rather brisk. There was no trace of involuntary movements, ataxia or incoordination. Gait appeared perfectly normal. Her arteries were not thickened—B.P. 120/90. Blood W.R. was negative, and spinal fluid normal in every way. (Protein ·02 per cent.; cells none; Lange ·010 and W.R. negative.)

She had a curious lack-lustre eye, and very little play of facial expression. She looked dull and apathetic, not sad. She sat or stood listlessly and unoccupied, answering questions readily, but indifferently, and her attention soon wandered. Her replies were discursive and rambling, and she was very garrulous, but quite coherent. She often gave vent to an apparently causeless unemotional laugh. She was perfectly orientated, not deluded or hallucinated. When pinned down her memory appeared very fair, and she made no worse a show than many hospital patients, although on superficial examination she appeared to have marked memory defect.



She had no insight. She said she supposed she was in hospital for a rest, and that she was quite capable of looking after her affairs. She was quite unconcerned about her filthy condition, and by the questions put to her.

Progress.—A few days after admission the patient was doubly incontinent, whilst up and dressed. Afterwards her habits were clean; indeed she spent quite a lot of her time washing her hands (she was unwilling or unable to explain this). At first she slept in a room by herself, and spent her time gazing out of the window, or trifling with the daily papers, but on being transferred to a ward, perked up a little, and although she usually paid no attention to the other patients, would dance with them on occasion to the gramophone in the day-room.

She continued unchanged until discharged early in August, her emotional poverty always strikingly in evidence.

Since returning home she has reverted to her former ways. She has neglected her household duties so much that her husband—who works in a garage—has had to employ a daily help to look after his home and her. She went to the cinema with considerable enjoyment on most evenings, and did not get up till lunch-time in the day. Seen in November, she said she was perfectly well, but found some difficulty in speaking since her

teeth had been removed (this had been done when in hospital). Her husband told me that perhaps she was rather clumsy sometimes, and would knock into door-posts occasionally, and trip on the stairs. Objective physical examination was still quite negative, except for the dysarthria which was more marked. Her memory, too, appeared to be worse. She was very vague as to when and for how long she had been in hospital.

Family History.—Patient's sister, a sensible North Country individual, and of especial value as a witness since she had a child who had suffered from Sydenham's chorea, provided the following family history. What she told me was supplemented by letters from her father and from Morpeth Mental Hospital. She had known two cases personally—those of her mother and of another sister.

(1) It was found impossible to trace the family further back than the *grandmother* (who married her cousin), and of her few details are available. Family tradition has it she was afflicted "in the same way." She died in Morpeth Asylum in 1863, her case being diagnosed as general paralysis. In view of the subsequent family history, it seems not unreasonable to assume that hers was in reality a case of Huntington's chorea.

(2) Coming next to the *mother* of the patient: The symptoms in this case started early in the fourth decade, and she died at the age of 49, having previously been bedridden for two years. She was never in an institution. At the end she had considerable dysphagia, and became very thin. Here again the first symptoms appear to have been changes in character, very similar to those of her daughter. My informant had to leave school when young, and when her mother was still in the thirties, in order to look after the home. Unlike the patient she, however, showed marked ataxia very early, and "reeled like a drunk." This became progressively worse, and for many years she also made a mess feeding herself. My informant was emphatic that her mother never made any choreiform movements (it will be remembered she had her own child to judge such movements by), or at most very slightly, and in her last years. She too was very garrulous and rambling in her talk, but never senseless. She was markedly dysarthric early, and for many years was intelligible only to her own relatives. She was usually apparently cheerful and contented, and never realised there was anything the matter with her. She became increasingly selfish and irritable, soon lost emotional control, and would fly into passions, "swearing like a trooper." Her memory was affected little, if at all. She was always a great reader, and remembered what she read.

(3) The *sister* of the patient first showed symptoms at the age of 24, and died 10 years later. She also was bedridden and emaciated towards the end. My informant assured me that all she had said of her mother was true in this case too. She also was markedly ataxic, dysarthric and garrulous, though always coherent. The whole course, however, appears to have been on a lower key; she was far less emotional, and more apathetic and depressed. She also never had any involuntary movements.

(4) The *uncle* of the patient the Morpeth authorities state to have been a classical and typical case of the disease. At the age of 24 he experienced some difficulty in walking and readily became tired. Two years later his hands became affected. His fingers were tremulous and he had difficulty in doing up buttons. His handwriting also became shaky. Simultaneously the muscles of his face and neck became involved Admitted into Morpeth in 1898, he was a well-built man, six foot tall, and weighing over 14 stone. His speech was slurred, and he showed twitching movements of the fingers and toes. His tendon reflexes were very active. He was diagnosed as a case of general paralysis, and the diagnosis maintained for four years, when it was changed to Huntington's chorea. His legs became very unsteady and weak, and his articulation almost unintelligible. With the passage of years he became progressively worse, and the choreic movements were always exaggerated on making any effort. Eventually he became bedridden, and had to sleep on a mattress on the floor, as the movements were liable to fling him from an ordinary bed.

His mental state from the date of admission was one of progressive dementia. He died 11 years after reception, in the early forties.

The information as to the other affected members of the family is less ample.

(5) Patient's *aunt* died at the age of 44, after an illness of about 10 years' duration. She was never in an institution. She is said to have been markedly ataxic and dysarthric, and evidently deteriorated mentally.

(6) One of her three *sons*, now in the twenties, is also showing signs of the disease. My informant, apart from having heard from a relation that he was "beginning to go," knew no details, and was unwilling to give the address.

DISCUSSION.

Elaborate studies on an extended scale have, in recent years, been made in America. The mass of material investigated has been very large. Davenport and Munsey[2] have analysed 962 known choreics. Enquiry into the families involved the consideration of no fewer than 4,370 individuals. Estella Hughes[4] has studied 218 cases and their families—1,308 relations in all. The conclusions reached are substantially the same.

They emphasise that the usual definitions such as "the insidious onset and progressiveness, in middle life, of involuntary jerky movements of the muscles in groups, accompanied by mental deterioration" need considerable amplification, for although the motor symptoms usually precede the mental, the reverse may occur; either may be present single; the disease is not invariably progressive, and the onset may be relatively early. Davenport and Munsey go so far as to cite cases in affected families where choreic movements were noticed soon after birth, and continued throughout life, without the supervention of further symptoms. The majority of cases, however, do conform to a general pattern, and have certain features in common, though individual families appear to have their own idiosyncrasies.

The disease in this country is certainly rather rare, although no statistical enquiry appears to be on record. Allbutt[1], even with his exceptional opportunities, stated in a demonstration that he could only call to mind having seen four such cases before, and one he quotes was seen in Italy. In America it is much more common. For example, it accounts for 1·9 per 1,000 of admissions into Michigan State Hospitals[4]. For everyone institutionalised, it is estimated there are four others living at home, more or less socially incapacitated.

The majority of cases are drawn from rural communities, and from the small professional classes, and in general the families are respectable and industrious. The balance of evidence seems to be against any special neuropathic manifestations in tainted families. Hamilton[3], in a study of 27 cases, found such traits "conspicuously absent" and Rosanoff[4] considers them to be so infrequent as to be accounted for by coincidence. With this view Hughes appears to agree.

The heredity is direct, that is, passes through generations without a break, and does not ordinarily appear in the children whose parents have been free

from chorea unless these parents died before the age of incidence ; it is suggested that the apparent exception to direct descent could be explained away, for the simplex carrier of a dominant trait might well show that trait imperfectly developed, or even, rarely, not in a recognisable form. There appears to be no means of foretelling which members of any given family will become affected. On an average half the children will develop the disease. The sexes are affected equally. The usual age of onset is between 30 and 45, but the widest variations have been recorded. It is perhaps of interest that Davenport and Munsey consider that evidence adduced in favour of antedating, as generations pass, is founded upon a statistical fallacy.

The motor choreiform symptoms are well known and very characteristic, and when well developed can hardly be mistaken for those found in any other disease. They need not be gone into here. Ataxia may be a prominent feature. Similarly the mental changes are on the whole distinctive. The deterioration is more pronounced in the affective sphere than in the intellectual. The patients usually show unconcern and inertia, and the statement that a "weakness in judgment and initiative, absent-mindedness, a growing selfishness and irritability, are amongst the earliest symptoms" is usually true. There is a notable lack of true appreciation of the disease. Only five times out of the 218 cases of Hughes is attempted suicide recorded, in spite of the emphasis laid by many authors (such as Stoddart and Craig and Beaton in their text-books) upon depression as a common symptom. Quite a large proportion show paranoid delusional formations ; hallucinatory states and schizophrenic reactions are sometimes seen.

The average duration of the disease is from 10 to 15 years, though very wide variations can occur (1 to 37 years and more).

It will be seen how strikingly the family here recorded exemplify the points given above. It springs from a small yeoman stock, respectable and industrious. No members, apart from those afflicted, have shown any marked mental abnormality. It exhibits direct descent very clearly ; no member not descended from a tainted parent has developed the disease. Roughly half the children in each generation have been affected. Neither sex is exempt. Two only out of the seven have been, so far, institutionalised. The known cases are said not to have been in any way remarkable before they developed symptoms. The average age of onset has been just under 30, with limits of 36 and 24. The average duration is about 10 years.

The patients have commonly shown inertia, unconcern and irritability, and mentally seem to be in no way remarkable. The family appears, however, to have been rather exceptional in that the most striking motor manifestation—choreic movements—has only been conspicuously present in one member. In all dysarthria has been a prominent symptom, and in the case personally observed this has been the sole striking motor disorder,even though marked mental deterioration has taken place.. Moreover, it is noteworthy that two members

of the family were actually diagnosed as suffering from general paralysis, and doubtless the same mistake would also have occurred in the case here recorded, were the family history and negative serological finding not available, for the clinical picture was certainly suggestive of that disease.

DIAGNOSIS.

When the motor symptoms predominate, cases clinically indistinguishable have rarely been observed in certain post-encephalitics[5, 7] and sufferers from neurosyphilis[7].

In these coming under observation primarily because of behaviour changes and mental deterioration, the diagnosis must be made from general paralysis (as in this family), and that very difficult group, the presenile arteriosclerotic degenerations. Against the latter will, of course, be the absence of definite changes in the vessel walls.

In all, the distinctive heredity will finally clinch the diagnosis.

SUMMARY.

1. A case of Huntington's chorea has been described, and the family from which the patient springs investigated.

2. The case is of interest because of the absence of motor symptoms, with the exception of dysarthria, although marked mental deterioration had taken place. Two members of her family had in the past been diagnosed as cases of general paralysis, and, clinically, this case also simulated that condition.

3. A brief summary of the common features of Huntington's chorea is given, drawn from detailed American investigations.

4. It is pointed out that even the complete absence of motor symptoms need in no way negative the diagnosis of the disease.

5. The distinctive heredity will in doubtful cases settle the diagnosis.

I must thank Dr. Anthony Feiling for permission to publish the case, which was in the Maida Vale Hospital under his care, and Dr. East, Superintendent of Morpeth Mental Hospital, for kindly supplying details of the case which was in that institution.

REFERENCES.

[1] ALLBUTT, C., *Brit. Med. Jour.*, 1918, i, 389.
[2] DAVENPORT and MUNSEY, *Amer. Jour. Insan.*, 1916, lxxiii, 195.
[3] HAMILTON, *Amer. Jour. Insan.*, 1908, lxiv, 403.
[4] HUGHES, E., *Amer. Jour. Psychiat.*, 1924-5, iv, 537.
[5] LHERMITTE and LAMAZE, *Revue neurol.*, 1920, xxvii, 768.
[6] ROSANOFF, quoted by Hughes (ref. 4).
[7] JELLIFFE and WHITE, *Diseases of the Nervous System*, 1929, 669.

THE ROLE OF PSYCHICAL FACTORS IN THE PRODUCTION OF ORGANIC NERVOUS DISEASE.*

By

ABRAHAM M. RABINER,

AND

MOSES KESCHNER, New York.

INTRODUCTION.

In the course of routine neurological practice many patients are encountered who present no objective findings to account for their complaints. These cases are then designated as 'non-organic,' 'functional,' 'hysteric,' 'psychoneurotic,' or 'psychasthenic,' and treated as such.

To the chagrin of the physician and discomfort of these patients many of them return after varying periods of time with undoubted evidences of organic nervous disease. The objective neurological findings which they then present can be readily correlated with the original complaints, and may be included in the concept of some well-defined organic nervous disease. It is then that one is confronted with the questions as to the relationship, if any, between these two phases in the patients' clinical course. In other words: (1) Is the later appearing organic phase independent, coincidental, or superimposed on the earlier, so-called non-organic phase? or (2) do both of these phases represent one and the same clinical entity, the second phase being present at the very onset of the disease, but that the objective manifestations were so slight or so overshadowed by the non-organic component as to escape clinical detection? (3) Is there any etiological relationship between the non-organic and organic phases?

Our clinical experience with some of these cases would seem to suggest that the evolution of some organic nervous diseases may occur in two phases; (1) the early, psychical, and (2) the later, organic phase. The transition between these two phases is imperceptible and can only be appreciated when the patients remain under prolonged observation by the same observers. We have had an opportunity to observe a series of such patients (*vide infra*) in whom after prolonged observation the possible occurrence of such a transition has suggested itself. These patients when last seen by us presented a symptom-

* Read by Title at the Fifty-fifth Annual Meeting of the American Neurological Association, Atlantic City, N.J., May 27, 1929.

* From the Neurological Services of Mount Sinai and Montefiore Hospitals, New York City.

complex with structural changes in the nervous system at the basis of it. The first question then arises: What, if any, is the relationship between these structural changes and the initial psychogenic manifestations?

In our opinion not only may change of structure influence function, but function may also influence structure. Our cases would seem to suggest that early functional disturbances in various segments of the body may be followed by changes in the anatomical structures at the basis of the neural mechanisms subserving these segments. Unfortunately in our present state of knowledge such transition does not lend itself to histological demonstration. General pathology and physiology, however, offer abundant evidence of the effect of disturbances of function on structure.

INFLUENCE OF FUNCTION ON STRUCTURE.

The increase in the size of cells of hypertrophied muscles and in hyperfunctioning glands is too well known to require further comment. The experiments of Hodge[1] show what occurs in the morphology of nerve structures in cases of increased activity. This observer found changes in the size and shape of the nuclei as well as of the protoplasm of ganglion-cells of various animals (frog, cat, dog, sparrow, pigeon, swallow, and honey bee) after prolonged electrical stimulation, and after normal fatigue. Verworn[2] and Ziegler[3] showed the occurrence of morphological changes in nerve elements during and after their prolonged activity. The views of these observers were later confirmed by Agduhr[4], who showed that in mice after training there was an increase of the number of nerve-cells in the ganglia, and that the number of axons were increased, and the neurofibrillary mass in the nerve-cells was considerably larger in size. Beritoff[5] believes that in the most active nerve paths of congenital as well as acquired reflexes the neurofibrillary mass and the neuroplasm of the nerve elements as well as the permeability of their plasma membranes are much greater than of those in the less active tracts—so much so that the electric resistance of the former is far less than that of the latter. Besides this a still more characteristic morphological change may occur during increased activity. We refer to the physiological development of nerve tracts, which has been shown by Kappers to exist during such increased activity. This author was able to show that during a continuation of stimuli in the nervous system there occurs an outgrowth of the principal dendrites and eventually a prolongation of the cell body in that direction from which the greatest number of stimuli come to that cell. Similarly the axis-cylinders actually grow in the direction of the stimulus. The physiochemical process at the basis of this phenomenon he designates as neurobiotaxis.

The effect of hypo- or afunction on morphology may be illustrated by what has been designated retrograde degeneration. Thus Berard[6] found distinct atrophy of the ventral nerve roots supplying a limb that had been amputated some time before. Marinesco[7] found that after amputation of a

limb, or after section of a peripheral nerve, there occur in the central part definite pathological changes. The younger the individual at the time of the amputation and the longer the time elapsing between the operation and death, the more marked are the alterations. The degeneration in the central stump of a divided nerve, although it appears much later than in the distal stump, presents similar morphological appearances, and is apparently an analogous process. The motor fibres of the central stump gradually diminish in number and, in some instances, appear to vanish entirely, and a large number of the motor cells of the ventral horns dwindle in size and may after a time be actually lost.

Gudden, Forel, Maper, and Mendel experimented by tearing spinal or cerebral nerves away from their connections with the central nervous system, especially in newly born or very young animals. These animals were allowed to live for many months, then killed. Histological examination of the central portion of the nerve involved, together with the group of cells corresponding to it, revealed marked changes in the nucleus of origin. The cells present showed distinct atrophic alterations and many of them had entirely vanished, so that enumeration of the cells of the group concerned revealed a decided discrepancy in the count on the two sides.

Nissl[8] states that even if the peripheral nerve is not cut through, but is rendered temporarily incapable of functioning, regressive alterations can be made to appear. Flatau, in accord with Nissl's investigation, obtained similar results from a study of the brains of four cats in which the third nerve had been cut intracranially. This has also been confirmed by Sodovsky[9] and Biedl[10]. Warrington[11] has shown that if the impulses coming to a cell by way of the dendrites and the cell body be cut off there appear changes in the whole neuron. He found that section of several posterior nerve roots is followed by a considerable degree of cell change. He believes that that is the result of the withdrawal of the afferent impulses which normally impinge upon the cornual cells. Hence the anterior horn cells must be in a highly altered functional state. He concludes that these results are in harmony with those of other observers, and, therefore, accepts the general law that in a cell loss of continuity of its axon is followed by definite structural changes.

As a matter of fact Cassirer states that every dysfunction, whether due to a disturbance in the afferent or the efferent path, or in the processes which are supposed to exist between them, leads to an anatomical change in the structure of the nerve cell. The final outcome of this change depends on whether we are dealing with an irreparable or only a transitory disturbance of function. Similarly, structural alterations may be produced in cases of hyperkinesia of psychogenic origin. One must recognize that merely the pattern of an abnormal movement proves nothing as to its genesis, and will not permit its classification as psychogenic or organic. Epidemic encephalitis has produced many syndromes of hyperkinesia and akinesia which only a few

years ago were classified as purely psychogenic. Studies of extrapyramidal syndromes have been of great interest to neurologists, especially as regards the types of disturbance that seem to form a link between organic and psychogenic affections.

ABNORMAL LIPOID METABOLISM AND THE PRODUCTION OF LESIONS.

The precise underlying factors entering into the production of this phenomenon of transition from psychogenic to organic must in our present state of knowledge remain speculative. That the basis for this phenomenon may have to be sought in disturbances of metabolism may perhaps be inferred from a statement by Adolf Meyer[12] that "Every mental adjustment must be in keeping with the laws of anabolism and catabolism; it has its somatic components" (p. 487). Modern researches seem to point to abnormal lipoid metabolism as a genetic factor in the production of degenerative lesions in the central nervous system. Given a patient who has sustained a psychical trauma, is it not conceivable that the latter may influence directly or indirectly the vegetative nervous system, giving rise to metabolic changes which may affect lipoid metabolism and so initiate pathological changes in the nerve structures? This hypothesis would seem, on theoretical grounds, to find substantiation in the clinical fact that most of these cases present features of extrapyramidal involvement. The close proximity of the vegetative centres to the basal ganglia which are apparently the site of predilection for the more common lesions of extrapyramidal disease may be more than a mere coincidence. It will remain for the biochemists to prove or disprove this hypothesis.

The relationship of the cortex and the basal ganglia has been stressed by all observers. The influence of the cortex on extrapyramidal motor disturbances is manifested clinically by diminution and at times temporary abeyance of the latter following suggestion, hypnotism and re-education. The relationship of affective processes to lesions in the midbrain and basal ganglia would seem to be of some significance in this connection. The close similarity of many of the symptoms of the various psychoses, endogenous or exogenous, such as the catatonias of dementia præcox, or the stupor of manic-depressive insanity and other psychoses, to similar states observed in organic lesions of the basal ganglia, as has been stressed by Henneberg, Jakob, Schilder, and others, is also suggestive of the close functional relationship between this component of the central nervous system and the psyche. We need only mention the clinical resemblance of the rigidity of catatonic dementia præcox ('rigidity of thought'), to that of Parkinsonism ('motor rigidity'). The distractibility and psychomotor restlessness of the manic patient may well be likened to extrapyramidal hyperkinesia. In this connection we wish to recall that most neurologists have time and again seen anxiety states in patients suffering from encephalitis, even when they were afebrile, which could not be distinguished from such states observed in the anxiety neuroses.

It seems to us that the evidence adduced hitherto is at least suggestive of the important role that psychical factors may play in the genesis of organic disease of the central nervous system.

PERSONAL CASES.

To illustrate our thesis we have selected at random the histories of some of our patients who began their disease with a psychogenic picture, and later showed evidence of definite organic nervous disease which could be well harmonized with the original complaint.

CASE 1.

J. S. At the age of sixteen this patient experienced great difficulties in her attempts at social adjustment. During this period she was continually subjected to various psychical traumas, which greatly influenced her behaviour. The details of these are not essential for the purposes of this paper. In January 1921, at the age of seventeen, following an unusually severe emotional shock she made an unsuccessful attempt at self-destruction. Immediately thereafter she developed movements of the muscles of the face, trunk and all her extremities. These movements, apparently involuntary, did not assume the pattern of any of the well-known dyskinetic phenomena usually associated with organic nervous disease. She was observed for three months at the Lenox Hill Hospital and after a stay in the country her condition improved. In May 1929 she was observed again, this time at Bellevue Hospital. Her movements later became intensified and she was then studied for nine weeks at the Neurological Institute. In March 1922 she entered the Mt. Sinai Hospital, where she was very noisy and excited and disturbed the other patients. She was finally admitted to the neurological wards of the Montefiore Hospital on May 13, 1922. Here the movements were found to be generalized and began to assume the pattern of a violent chorea. As time went on, however, she developed contractures at the ankles and toes and the movements became typically dystonic. There is no question now but that hers is a classical case of dystonia musculorum deformans.

CASE 2.

L. B. In August 1927, while she was swimming in the Hudson River with a friend both were swept away by the undertow. Her playmate was drowned and our patient was barely saved. She then developed generalized choreiform movements; these have persisted and are always aggravated by any emotional strain. She has never had any sore throats, joint pains, or other rheumatic manifestations.

When she was first admitted to the Mt. Sinai Hospital, on November 16, 1927, her entire clinical picture was attributed to hysteria. The psychiatrist in that institution interpreted her movements as a "reactivation of an old conflict between infantile exhibitionistic tendencies and her more mature and realistic ego ideal." As time went on, however, the posture of the feet assumed a definite pattern of dystonia and now there is no question that she is suffering from dystonia musculorum deformans.

CASE 3.

R. C. This is the case of a female of 26 years. At the age of fourteen, while in the country, she was greatly frightened during a thunderstorm. She immediately developed jerky movements in all parts of the body, especially the face, shoulders, hands and lower extremities. During the following three years she was under observation in several hospitals, in all of which her case was diagnosed as hysteria. She was then admitted to the Montefiore Hospital. During the first three years of her stay in this institution her case was regarded as one of disordered motility of psychogenic origin, although some

of the observers were of the opinion that there might be an underlying organic substratum for her movements. The dyskinetic phenomena were at various times associated with attacks of spontaneous laughter and crying. The movements of the lower limbs were so violent that she was unable to walk until plaster casts were applied under general anæsthesia. She then was able to walk fairly well and left the hospital wearing braces. One year later she was readmitted with the same complaints. Observations at this time left no doubt that the case was one of typical dystonia musculorum deformans.

SUMMARY.

1. The evolution of some organic nervous diseases may occur in two phases: (*a*) The early psychical, and (*b*) the later organic phase.

2. The transition between these two phases may be imperceptible and only appreciated after prolonged observation by the same observers.

3. We would suggest that during this transition there may occur structural changes in the nervous system resulting from disturbances of function during the first or non-organic stage.

4. Evidence is adduced that not only may structure influence function, but also that function may influence structure.

5. A hypothesis is offered that psychical factors may, through the vegetative nervous system, affect lipoid metabolism and so produce structural changes in the central nervous system at the basis of the organic clinical picture.

6. Three cases are cited in which the patients, following psychical trauma, developed disorders of motility that did not conform to the patterns of any known organic nervous disease. Later the patients developed evidences of organic nervous disease, undoubtedly due to structural changes in the nervous system.

REFERENCES.

[1] HODGE, C. F., *Jour. of Morphol.*, 1892, vii, 95.
[2] VERWORN, M., *Zeits. allg. Physiolog.*, 1907, vii, 119.
[3] ZIEGLER, H., *Biolog. Centralb.*, 1908, xx, 1.
[4] AGDUHR, *Jour. f. Psychol. u. Neurol.*, 1920, xxv, 463.
[5] BERITOFF, J., *Jour. f. Psychol. u. Neurol.*, 1927, xxxiii, 176.
[6] BERARD, *Soc. anat. de Paris*, 1829, iii, 54..
[7] MARINESCO, G., *Neurol. Centralb.*, 1892, xi, 463.
[8] NISSL, F., *Centralb. f. Nervenheilk.*, 1894, xvii, 337.
[9] SADOVSKY, S., *C. R. Soc. de biol., Paris*, 1896, iii, 355.
[10] BIEDL, A., *Wien. klin. Woch.*, 1895, viii, 915.
[11] WARRINGTON, W. B., *Jour. of Physiol.*, 1898, xxiii, 112.
[12] MEYER, ADOLF, *Amer. Jour. of Insan.*, 1908, lxv, 38.
[13] DOLLEY, DAVID H., *Jour. of Comp. Neurol.*, 1917, xxix, 465.

CONGENITAL FACIAL DIPLEGIA.

By

R. M. STEWART, Leavesden.

LITERATURE.

Two types of congenital facial paralysis may be recognised. In the first and more common variety the paralysis affects one side of the face only, and is seldom total; nor is it as a rule accompanied by ocular palsies or other congenital malformations. Cases of unilateral facial palsy have been recorded by Stephan[1], Bernhardt[2], Schultze[3], Minor[4], Marfan and Delille[5], Souques and Heller[6], Apert[7], Goldreich[8], Falloux[9], Bonnet-Roy[10], Delherm[11], Wilbrand and Saenger[12]. In the second type, with which this paper is concerned, the paralysis is bilateral and usually total; in the majority of cases certain of the external muscles of the eye are involved and other congenital malformations may be present. The clinical features of this type appear to have been first described by Graefe[13] in 1880. His patient was a sane epileptic with facial diplegia (incomplete on the right side), paralysis of both external recti, and total loss of smell and taste. When, as in this case, the paralysis is incomplete, the muscles which escape are almost invariably those in the neighbourhood of the mouth and chin. Of this type are the cases described by Procopovici[14], Möbius[15], Batten[16], Taylor[17], Fry[18], and Woltmann[19].

Complete paralysis of the sixth and seventh pairs has been reported by Harlan[20], Möbius[21], Decroly[22], Fryer[23], Schapringer[24], Kahlmeter[25], Kirby[26], Chisolm[27], Cabannes[28], and Leszynsky[29]. The anatomical relationship of these nerves within the brainstem explains why they are so frequently implicated together, but it is also possible for the third and fourth cranial nerves to be involved, as in Recken's[30] case, where partial facial diplegia was accompanied by a complete external ophthalmoplegia, or again as in a case reported by Möbius[31] where the inferior recti were paralysed.

Less frequently three or four cranial nerves are concerned. Thus, paralysis of the motor fifth has been recorded by Schapringer[24], and by Fry and Kassak[32]; paralysis of the facial and hypoglossal nerves by Woltmann[19] and Schmidt[33]; and paralysis of the sixth, seventh and twelfth by Kirby[26] and Batten[16]. With the solitary exception of the case of Graefe, referred to above, there are no records of disturbance of the sensory cranial nerves, and it is important to note that although the extrinsic ocular muscles are often affected those concerned with pupillary reactions invariably escape.

The congenital malformations which may be encountered are very diverse. Double epicanthus has been described by Schrapinger[24], bilateral absence of

the lachrymal caruncles by Schrapinger[24] and Chisolm[27], deformed ears by Thomas[34], funnel breast by Schrapinger, absence of the pectoralis major and mamma by Woltmann[19], prominence of the eyes by Thomas[34], recession of one eye by Graefe[13], fused or dwarfed fingers by Möbius[15], Saignon and Woltmann[19], shortness of limbs by Fryer[23], club foot by Kirby[26] and Lennon[29] and diastasis of the abdominal muscles by Lennon. Sargnon and Bertein[35] refer to the possibility of visceral lesions.

SEMIOLOGY.

In a typical case the appearance of the patient is most striking. The face is sunken and mask-like, without lines or expression; the lips, full and protruding, are parted so that saliva may dribble from the mouth; the skin covering the atrophied facial muscles is smooth, shiny and pale. When the patient attempts to close the eyes the globes move upwards and a little outwards or inwards. If to the above picture there is added paralysis of the sixth cranial nerves, movement of the eyes to either side is impossible, and there is usually a marked degree of internal strabismus. In spite of this, convergence may be retained. Only exceptionally is acuteness of vision impaired, as in the cases reported by Harlan[20] and Möbius[15].

Examination of the electrical reactions is of great importance, for in complete facial diplegia of congenital origin both muscles and nerve invariably show an entire absence of response to either galvanism or faradism. Occasionally certain muscles, especially the platysma and those of the chin, retain their excitability, but the reaction of degeneration is never found.

Owing to inability to approximate the lips the patient has difficulty in pronouncing the consonants b, f, m, p and v.

ETIOLOGY AND PATHOLOGY.

Unilateral facial paralysis is not infrequently the result of injudicious use of forceps at birth, but bilateral obstetrical paralysis must be of exceptional rarity, for Edgeworth[36] appears to be the only writer to have recorded a case in recent years. Nearly all cases of congenital facial diplegia are attributable either to an agenesis or to a degeneration of the cells of the facial nucleus: only in one or two has the defect been in the mesoderm. Lennon[37], for example, refers to a case reported by Schenkl in which the facial muscles were absent, although the nerves themselves and their central connections were intact. Möbius's[21] suggestion that the condition owes its origin to some defect of the facial nucleus is very largely born out by the few pathological investigations available in the literature. Heubner[38] performed an autopsy on a child, age two and a half years, who during life presented total left and partial right facial paralysis, paralysis of both external recti and atrophy of the left half of the tongue. Histological examination showed atrophy of the cells of the of the sixth, seventh and twelfth cranial nerves, with, in addition, imperfect development of the left olive and left pyramidal tract. Sections stained by

Marchi's method showed no evidence of recent myelin degeneration ; examination of the facial nerves was confined to their intramedullary portions. Heubner concluded that there was a hypoplasia of the nuclei concerned, but this view is decidedly open to question, for the mere absence of nerve-cells is no proof of nuclear agenesis. In old-standing lesions it is never easy to distinguish between aplasia and atrophy, and Heubner's description of the pathological changes would apply equally well to a degeneration or atrophy of nerve-cells.

In another case, reported by Rainy and Fowler[39], the lesions were of recent origin and their investigation yielded important information. An infant ten weeks old was admitted with almost complete paralysis of both facial nerves. Eye movements were normal and no other cranial nerves were affected. At first the orbiculares palpebrarum responded to galvanic and faradic currents, but very soon these reactions faded out, without the occurrence of R.D. The child succumbed to broncho-pneumonia. Examination of the brainstem showed disappearance of many of the nerve-cells of the facial nuclei, those remaining showing shrinkage, irregular Nissl bodies and ill-developed processes. The sixth nuclei were intact. Marchi's stain revealed degeneration of the fibres of the facial nerves throughout their whole course ; the facial muscles which the authors described as being greatly atrophied proved normal on microscopic examination.

In this case, since degenerated nerve-fibres were present, it is obvious that at an earlier stage there must have been nerve-cells from which they took origin, and consequently aplasia as a possible cause could be excluded. The authors remark that since the electrical reactions appeared to fade out without the occurrence of R.D. " one must conclude that no sudden accident whether of the nature of a traumatism or an acute polioencephalitis abruptly severed the muscles from their nutrient centres, while the bilateral symmetry of the lesion is also adverse to such an opinion." Concerning the nature of the toxin or other agent which could cause nuclear lesions limited so strictly that while the nerve cells of the seventh nucleus were profoundly affected those of the sixth remained normal they have nothing to say save that " the nerve cells slowly perished, leaving evidence of their former existence in the degenerated nerves and in the atrophied muscles they formerly controlled."

Were it not for the absence in this case of R.D. one would be tempted to regard their case as an example of traumatic facial paralysis, for since marks caused by the obstetrician's forceps were plainly visible five weeks after birth the original trauma must have been fairly severe. Moreover, the histological appearances were quite compatible with those which follow an indirect Wallerian degeneration such as might have arisen after bruising or crushing of the facial nerves.

REPORT OF A CASE.

V. S., a male imbecile, age 8, was admitted to hospital on February 22, 1909. No history could be obtained. He was noted to have strabismus,

club-foot and undescended testicles, but the facial diplegia escaped detection and was not recognised until nearly twenty years later.

State on Examination: April 1, 1929. The patient is an undersized adult male Jew. Height 61 inches. The upper limbs are disproportionately long and the lower limbs short; the latter show a slight degree of genu valgum and bilateral talipes varus. There is hair on the chest, sacrum and lower limbs; on the latter situation the growth is remarkably abundant. The heart and lungs are healthy and the Wassermann reaction in the blood is negative. The head is small with sloping forehead and occiput: circumference 21 inches.

The facial paralysis is complete and total, neither voluntary or emotional movement being possible. The forehead is high, receding and entirely free from wrinkles. The face is expressionless, the complexion pale and the cheeks hollow, especially on the left side. The palpebral apertures are wide and both upper lids are retracted so that the eyelashes are hidden at their bases. The eyebrows, which are situated a few millimetres above the free edges of the eyelids, are thick and straight. Winking does not occur.

On both sides a marked degree of internal strabismus is present and it is perhaps a little more pronounced on the left. The eyes cannot be moved outwards but a slight degree of convergence is possible. All other ocular movements are performed fairly well. When the patient attempts to close his eyes the globes move upwards and inwards. Slight narrowing of the palpebral apertures accompanies the upward movement of the eyes but this appears to be due not to any contraction of the orbiculares but to a passive lifting of the lower lids through the agency of the conjunctiva.

The pupils are equal and react normally to light. Vision is remarkably good; in reading the patient turns his head obliquely to one side.

The nose is somewhat bulbous, the nares are narrow, and on deep inspiration the alae nasi are indrawn. The ears are small, symmetrical, and well formed; the mastoid processes are normal and there is no impairment of hearing. The mouth is habitually open and saliva occasionally dribbles from the everted lower lip. Upward and downward movements of the lower jaw are performed freely without deviation but lateral movements are almost nil.

The patient is quite unable to bring his lips together and has therefore to adopt special devices for dealing with liquid food or when smoking. When, for example, soup has to be swallowed he tilts his head well back so as to retain it in his mouth. In order to smoke a cigarette he covers his mouth with one hand and holds the end of the cigarette between the third and fourth digits. Smoke can be readily expelled through the nose even when his mouth is uncovered. The tongue is protruded straight and shows neither atrophy nor tremor; its tip, however, is unusually pointed. The soft palate and uvula move normally on phonation.

The voice is deep and guttural, and the patient sings in a low monotonous tone; the complete absence of facial movement during his recital reminds one of the performance of a ventriloquist.

The skin of the face is unusually thin and pale, and when the underlying tissues are pinched up between the thumb and forefinger the absence of muscular development is very obvious. Sweating on this area may occasionally be noted, and there is a vigorous growth of hair, necessitating frequent shaving.

All forms of sensation are normal.

Electrical reactions: There is an entire absence of response to either the faradic or galvanic current in the facial nerves and muscles. The patient's mental state is one of medium grade imbecility. Mental age, 7 years.

DISCUSSION.

Although no history is available there can be little doubt that the facial diplegia in this case is congenital. The bilateral character of the paralysis, its association with sixth nerve palsy, the absence of contracture, and the occurrence of faults in development, such as club-foot, all point in this direction, and to this view the complete absence of electrical reactions lends additional support.

Further, it must be noted that in addition to paralysis of the sixth and seventh cranial nerves there is involvement of part of the motor division of the fifth, and in this respect the case bears a resemblance to one of Schapringer's cases. Finally, it may be noted that this appears to be the first case in which an obvious degree of mental defect has been present.

REFERENCES.

[1] Stephan, *Wechbl. v. h. Nederl. Tydschr. v. Geneesk.*, 1888, vi, 113.
[2] Bernhardt, M., *Neurol. Centralb.*, 1894, xiii, 2; *ibid.* 1897, xvi, 296.
[3] Schultze, F., *Neurol. Centralb.*, 1892, xi, 425.
[4] Minor, *Arch. de neurol.*, 1897, ii, 354.
[5] Marfan and Delille, *Soc. méd. hôp. Paris*, 1901, xviii, 1007.
[6] Souques and Heller, *ibid.*, 1903, xx, 121.
[7] Apert, E., *ibid.*, 1903, xx, 125.
[8] Goldreich, A., *Mitt. d. Gesellsch. f. inn. Med. u. Kinderheilk. in Wien*, 1906, v, 161.
[9] Falloux, *Thèse de Paris*, 1909.
[10] Bonnet-Roy, F., *Rev. de laryngol.*, 1920, xli, 449.
[11] Delherm, L., *Soc. franc. d'electrothér. et de radiol.*, 1926, vii, 13.
[12] Wilbrand and Saenger, *Neurologie des Auges*, 1921, viii, 179.
[13] Graefe, A., *Handb. d. gesamt. Augenheilkunde*, Leipzig, 1880. vi.
[14] Procopovici, E., *Arch. f. Augenheilk.*, 1896, xxxiv, 34.
[15] Möbius., *Allg. Zeits. f. Psychiat.*, 1888, vi, 7.
[16] Batten, F. E., *Brain*, 1905, xxviii, 359.
[17] Taylor, S., *Trans. Clin. Soc.*, 1902, xxxv, 177.
[18] Fry, F. R., *Interstate Med. Jour.*, 1918, xxv, 856.
[19] Woltman, H. W., *Med. Clin. N. Amer.*, 1919, 573.
[20] Harlan, G. C., *Trans. Amer. Ophthalm. Soc.*, 1881, iii, 216.
[21] Möbius, P. J., *Neurologische Beiträge*, 1893, Hft. 4.
[22] Decroly, O., *Bull. Soc. roy. sc. méd. et nat. de Brux.*, 1902, lx, 133.
[23] Fryer, B. E., *Ann. Ophthalm. and Otol.*, 1892, i, 82.
[24] Schapringer, A., quoted by C. Kunn in *Beitr. f. Augenheilk.*, 1893, ii, 758.

[25] KAHLMETER, *Hygeia*, 1916, lxxviii, 1321.
[26] KIRBY, *Arch. of Ophthalm.*, 1923, lii, 452.
[27] CHISOLM, J. J., *Arch. f. Augenheilk.*, 1886, xvii, 414.
[28] CABANNES, *Rev. neurol.*, 1900, viii, 1011.
[29] LESZYNSKY, *N.Y. Med. Jour.*, 1897, v, 65, 291.
[30] RECKEN, *Klin. Monatsbl. f. Augenheilk.*, 1891, xxix, 340.
[31] MÖBIUS, *Münch. med. Woch.*, 1881, xxxv, 91.
[32] FRY and KASAK, *Arch. of Neurol. and Psychiat.*, 1919, ii, 638.
[33] SCHMIDT, *Deut. Zeits. f. Nervenheilk.*, 1897, x, 5.
[34] THOMAS, *Johns Hop. Hosp. Bull.*, 1897, viii, 130.
[35] SARGNON and BERTEIN, *Arch. internat. de laryngol.*, 1927, viii, 57.
[36] EDGEWORTH, *Brit. Med. Jour.*, 1894, i, 11.
[37] LENNON, *California State Med. Jour.*, 1900, viii, 115.
[38] HEUBNER, *Charité Annalen*, 1900, xxv, 111.
[39] RAINY and FOWLER, *Rev. Neurol. and Psychiat.*, 1903, i, 149.
REMAK, quoted by C. KUNN in *Beitr. f. Augenheilk.*, 1895, ii, 711.
HELLER, A., *Thèse de Paris*, 1903.
FRY, F. R., *Journ. Am. Med. Assoc.*, 1920, lxxiv, 1699.

Fig. 1. Normal expression.

Fig. 2. Attempt to 'screw up' eyes.

Fig. 3. Profile.

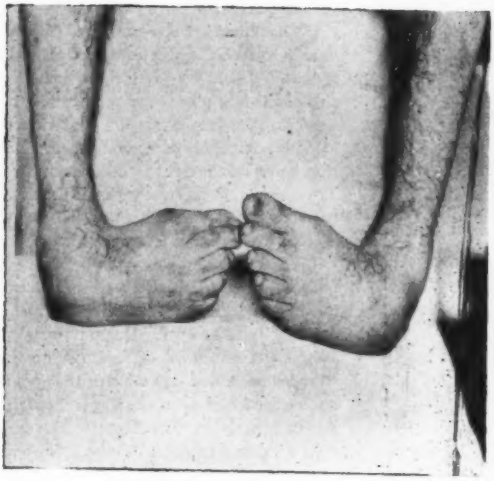


Fig. 4. Bilateral club foot.

Short Notes and Clinical Cases.

A STUDY OF A HUMAN MIDBRAIN PREPARATION.

By

E. ARNOLD CARMICHAEL, London.

Physiologists and clinicians are nowadays conversant with the various reflexes capable of production in decerebrate and midbrain preparations of animals. There are, however, but few records of the production of similar reflexes in decerebrate and midbrain conditions of man. It therefore seems reasonable to place on record the findings on clinical examination of a case which presented all the signs of having become a midbrain preparation.

PERSONAL CASE.

Mrs. E. R., age 60 years, was admitted to hospital on account of weakness of left arm and leg. On the evening of January 24, 1930, she went to bed in apparent good health. She rose the following morning and, while making a cup of tea, cried out. Her son, rushing to her aid, found her leaning over to the left and clasping her right hand in the region of her heart. To his questions she complained of weakness of the left hand, arm and leg, and of severe headache in the right frontal region. Within a few hours she was admitted to hospital.

On examination she presented the following signs. A left-handed woman, she was unable to speak freely, though apparently understood commands, such as "put out your tongue," "hold up your right hand." There was very marked weakness of the left side of the face; her eyes were turned to the right and she was unable to deviate them to the left. The pupils were small and equal, and reacted briskly to light. The left arm and leg were completely paralysed and flaccid. The tendon reflexes on the left side were brisker than those on the right; the left plantar response was extensor, while the right was flexor. The apex beat was level with the nipple line, and the heart sounds were pure. The blood pressure was 240 mm. Hg., systolic, and 100 mm. Hg., diastolic. The other systems were normal except for a trace of albumin in the urine.

Within 24 hours she rapidly became worse: her breathing became stertorous: her pulse rate increased, and her temperature rose to 100° F. She appeared unconscious of her surroundings, and in no way could be roused. Further examination elicited interesting reflex activities as well as new physical signs in the nervous system. No stimulus could arouse consciousness. Her pupils were small and quite inactive to light. Vestibular stimulation caused deviation of the eyes: the corneal reflexes were just present. Painful stimuli to the face did not appear, judging by facial expression, to cause conscious pain; her arms and legs were flaccid. The deep reflexes were all very brisk, and both plantar responses were extensor in type. She was sweating profusely all over the trunk and face.

It thus appeared that anatomically the lesion involved the pyramidal tracts, first on the right side of the cerebrum and later on the left side. The

fact that the light reflex disappeared, while stimulation of the vestibular nerves caused deviation of the eyes, suggested a lesion above the level of the third cranial nerve nucleus, but below the level of the external geniculate body.

PATHOLOGICAL REPORT.

At post-mortem the meninges were found to be normal ; the cerebrospinal fluid was tinged with blood. The gyri of the right cerebral hemisphere were flattened and broadened. Section of the brain revealed blood in both lateral ventricles, but none in the third ventricle, iter of Sylvius or fourth ventricle. The right centrum ovale was completely destroyed by a large hæmorrhage which extended down into the right cerebral peduncle as far as the anterior border of the substantia nigra and the red nucleus. The red nucleus itself appeared undamaged. The left hemisphere and peduncle showed no macroscopical lesion. The blood vessels of the circle of Willis were atheromatous.

From the clinical and pathological evidence the lesion appeared to be situated above the red nucleus ; therefore this case resembles mid-brain animal preparations.

MIDBRAIN REFLEXES.

The following interesting reflexes were obtained.

With the patient lying flat on her back and the arms by the side, rotation of the head to the left caused the right arm to flex at the elbow-joint, to adduct at the shoulder-joint, the forearm to pronate and the fingers to flex with the thumb opposed to the palm ; at the same time the right leg flexed slightly at the hip- and knee-joints, but no movement of the toes was observed. Synchronous with these movements the left arm extended at the elbow-joint and became slightly abducted at the shoulder-joint, while the left leg extended at the hip- and knee-joints. Rotation of the head to the right caused a complete reversal of the above state. These reflex movements were frequently elicited and were always of the same character.

Acute flexion of the head on the chest caused both arms to flex at the elbow-joints, and both forearms to pronate. Palpation of the legs revealed definite tension of the quadriceps muscles ; no movement of muscles was palpable below the knees.

Acute extension of the head, so that the occiput was in approximation to the region between the shoulders, resulted in rigid extension of both arms with pronation of the forearms ; no palpable movement was appreciated in the muscles of the legs.

When the patient was rolled on to her left side the right arm flexed slightly at the elbow-joint and swung forward from the shoulder, bringing the arm round in a circle. No movement was noted in the legs. When rolled on to her right side, the left arm performed a similar movement to that previously described in the right arm.

Stimulation of one or other ear with cold water caused conjugate deviation of the eyes to the side stimulated, but no obvious change in the posture or the tone of the muscles of the arms or legs. If she was first placed on her right side and then the left ear was stimulated with cold water, skew deviation of the eyes occurred; the left eye looked up and out while the right eye looked down and in. When she was on her left side, and the right ear was stimulated with cold water, the right eye looked up and out while the left eye looked down and in. Never at any time was a nystagmus produced.

In the act of stimulating the labyrinths with cold water, two reflexes constantly occurred. At the first gush of cold water into either ear, sudden rigid extension of both arms with some pronation of both forearms resulted, while palpation of the legs revealed a minimal contraction of the quadriceps muscles. If a piece of rubber tubing was inserted into the ear down to the drum, at the moment of contact with the drum a similar reflex response in the arms took place. It thus appeared that this reflex action was in some way connected with the ear-drum. It was further found, as the tube was being inserted into one or other ear, and before the drum was reached, that the patient invariably coughed; the coughing, however, was not associated with any movement of the limbs. Lastly, digital pressure on the under surface of the eyebrows, in the occipital region, or even simple pinching of the skin of the face, neck or shoulder, resulted in an immediate and simultaneous complete extensor movement of all four limbs with pronation of the forearms. This reflex action was repeatedly established, while every effort was made to cause no movement of the head on the trunk during stimulation.

On forcible plantar flexion of the toes on the right side, the right leg flexed, and if the left leg had been previously placed in a slightly flexed position, it extended at the hip- and knee-joints; no movement of the toes of the left foot was observed. If the toes of the left foot were plantar-flexed, then the left leg flexed and the right leg extended.

Pressure on the soles of the feet never at any time produced any movement of the flexors or extensors, irrespective of the position into which the leg had previously been put.

COMMENT.

This case exhibited in a remarkable way the reflexes associated with posture which have been so extensively studied in animals of recent years. The arm and leg movements following movement of the head on the trunk are similar to the tonic neck reflexes; the change in posture of the limbs when the body was rolled from one side to the other is analogous to the reflexes found in animals. The flexion-extension reflexes of the legs on painful stimulation of the toes are also demonstrable in animal preparations. Two reflexes found in this patient are rarely, if ever found in animal preparations: first, the coughing reflex on introducing an object into the ear, and, second, the multiple limb

extension response on painful stimulation of the skin of the head, neck and shoulders. The first, however, is commonly seen in the Ear Departments of large hospitals ; and the suggested pathway is supposed to be by Arnold's nerve, a branch of the tenth cranial nerve, which supplies the floor of the external auditory meatus. The multiple limb extension reflex from painful stimuli is difficult to explain ; the suggestion that it might be in the nature of a tonic neck reflex is difficult fully to comprehend, because stimulation of the face or back of the head or side of the neck produced similar results ; had it been a tonic neck reflex resulting from stretching of one or other group of muscles, one would have expected an alternating pattern of response dependent on the area stimulated, but this did not occur. Further, to produce the tonic reflex, forced rotation of the head had to be made, while the mere insertion of a soft rubber catheter in one or other ear was sufficient to produce the multiple extension response. One thus feels that there must be some other explanation of this phenomenon. Recourse to available literature, physiological and clinical, has failed to reveal any records of a similar disturbance having been recorded in either man or animals.

To Professor Fraser, of the Medical Unit, St. Bartholomew's Hospital, I owe my thanks for permission to publish these notes of a patient who was under his care.

Editorial.

THE UNDERGRADUATE TRAINING IN NEUROLOGY.

THE neurologist who is attached to the teaching staff of an undergraduate medical school is faced with responsibilities from which he cannot escape. Educational problems, in so far at least as they concern his specialty, must of necessity engage his attention. Called upon to remember that the primary ideal of an undergraduate school, or of most schools of the kind, is to produce not the specialist but the best type of general practitioner, he consequently asks himself how this end can be best attained in the time at his disposal. Probably he feels that it is difficult or impossible, in the period allotted to him, to deal satisfactorily with, and do justice to, his specialty; but this he finds is the attitude of most of his colleagues in relation to the subjects which they individually profess. The balance of the curriculum as a whole must be jealously preserved and the neurologist must be content with his apportioned time unless he succeeds in persuading his colleagues that neurology is deserving of more generous consideration.

Impressed by the complexity of the anatomy and physiology of the nervous system, the undergraduate approaches the study of clinical neurology with a respect inculcated by his preparatory studies. He has been taught that disease manifests itself in disturbance of function and he is rather appalled by the possibilities which confront him when he applies this conception to the nervous system. His objective scientific training has led him to anticipate a structural or materialistic explanation for all the phenomena of disease. But while he has, or ought to have, acquired a knowledge of the nervous system in terms of nerve tracts and functional activity, he knows little of pathological conditions. Time must elapse before he comes to appreciate the immense value of an anatomical localisation not per se but in relation to the information it affords as to the nature of the pathological process responsible for the clinical picture. But what of the psychoneuroses? Here, again, the tyro has probably his preconceived ideas. He has heard something of psychology and he may have acquired, thanks to the daily press, an altogether erroneous impression as to the relative value of

psychological methods, which of recent years have been utilised with advantage (and too often exploited) in the treatment of nervous disorders. He is not in a position to weigh evidence, and is consequently apt to confuse the method with the result, to evaluate diagnostic and therapeutic procedures according to their complexity, and to overestimate the utilitarian application of elaborate procedures, which are only called for in the specially selected case, as compared with the simple and effective measures in everyday use. He has yet to learn that it is not the psychology taught him by the academic psychologist or by the alienist, but the rational individual psychology of Dejerine and T. A. Ross, the psychology which he learns from the physician and acquires from personal experience, which will be his stand-by when he comes to practise his profession.

So much by way of a preamble. How can the teacher utilise the time and material at his disposal to best advantage in order to give the future general practitioner an introductory knowledge of neurology which will prove of real service to him in his subsequent sphere of activity? This is the particular problem under consideration. To attempt to describe and discuss the numerous disorders of the nervous system and the multifarious manifestations which they present is obviously out of the question. A selective discrimination is called for. While an adequate discussion of the possibilities in this connection is quite beyond the scope of an editorial such as this, a brief account of the method adopted in the Edinburgh School may prove of interest.

The undergraduate during his five years' curriculum spends at least four terms in the general medical wards of the Royal Infirmary, the number of students in each year being equally divided among the charges under the eight honorary physicians. To each charge of some forty beds an assistant physician, who takes a large share in the teaching, and a clinical tutor, a graduate of several years' standing whose special duties are to assist the student in his physical examination and in making his case-records, are attached. Case-recording receives special attention and a uniform system is employed throughout the hospital. Thus the student obtains a personal knowledge of the routine examination of the nervous system, and at the same time acquires some information regarding the commoner nervous disorders from the occasional cliniques upon cases of nervous disease which are given by the physicians and assistant physicians, pari passu with his training in general medicine.

Possibly the specialist may hold the view that the student should receive his neurological training from the first from a neurologist in a special department. On the other hand, it may be argued that from the standpoint of the future general practitioner it is a mistake to divorce neurology from medicine, more especially since so many nervous disorders arise as complications in the course of general medical disease. Then, too, from the administrative point of view it is to be remembered that in a large undergraduate school with many medical charges it would be difficult to arrange for all the students to work for a period in a neurological department.

Special neurological instruction is given to the student during the second (spring) term of his fifth year when the physician who lectures upon neurology gives a course of lecture-demonstrations (thirty in all) three days a week. Although this is a voluntary class, open to fifth year students and graduates, the fact that it is attended by almost all the students of the fifth year would appear to indicate their appreciation of its usefulness. The method adopted in this course of lecture-demonstrations, which is held in one of the clinical teaching theatres in the hospital, is as follows : Two or three introductory lectures are devoted to a brief review of the applied anatomy, physiology and pathology of the nervous system. The commoner organic disorders are then dealt with more or less systematically in the following way. A patient is brought into the auditorium, the students' attention is drawn to any morbid appearances he may present and the significance of each is discussed in turn in the light of the anatomical and physiological knowledge the student may be presumed to possess. When all the obvious justifiable inferences have been referred to, the patient is physically examined with special reference to the observations already made and the facts epitomised in relation to the anatomical diagnosis. The history is then briefly elicited from the patient and inferences as to the nature of the pathological process discussed in the light of the information so obtained. Finally, the lecturer attempts to summarise vividly all the facts and advance a reasoned anatomical and pathological diagnosis to account for them. Then and only then is mention made of the name by which the disease is to be classified. Attention is then drawn to any exceptional features the case may present, brief reference is made to etiological, prognostic and therapeutic considerations, and the student is referred to his textbook for a systematic description of the disease. From

day to day different disorders are treated in this manner, the lecturer pausing from time to time as appears opportune to discuss the precise general significance of individual symptoms and physical signs. Towards the latter part of the course the rapid routine examination is repeatedly carried out and problems of differential diagnosis referred to with direct reference to the individual case.

The advantages advocated for this method of teaching, which can of course in no way replace the student's work in the wards, examination of cases and case-recording, are (1) that the neurologist has thereby an opportunity of instructing all the students of the year, and (2) that the student learns how the physician observes and thinks ; he has repeated opportunities of noting the precise method employed by the physician in eliciting the phenomena of disease, and of learning something of the exact significance of symptoms and physical signs ; he sees types of many of the commoner disorders which he will probably meet with in practice ; he learns to think of disease in clinical terms and not according to textbook descriptions ; in other words, he acquires the clinical outlook and learns how to approach a case, while in addition he sees the way in which the physician deals with patients and always keeps in view the patient's attitude of mind.

Pathological and anatomical demonstrations, directly related so far as possible to the clinical demonstrations, constitute a popular feature of the course. These demonstrations, the attendance upon which is also optional, are held twice a week on alternate days by the University lecturer on neuropathology and his associates.

Abstracts.

Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.

[194] **Anatomy and connections of the thalamus in the dog** (Anatomie et connexions thalamiques chez le chien).—P. Glorieux. *Jour. de neurol. et de psychiat.*, 1929, xxix, 525.

The thalamus is built up on a common basic plan amongst the higher mammals. Thalamic nuclei are divisible into three groups: (1) an internal set, which so far appear to have no extradiencephalic relations; (2) a median group comprising the anterior nucleus, the parataenial and the median nuclei. This set is related to the caudate nucleus and does not appear to be connected with the cerebral cortex; (3) an external set made up of an optical portion (external geniculate body and posterior part of the posterior nucleus), an acoustic portion (internal geniculate body and ventral nucleus) and a third portion (anterior part of the posterior nucleus, lateral nucleus and reticulo-dorsal nucleus). With regard to thalamothalamic connections, the author determines that the internal geniculate body is connected with homolateral (and perhaps also with the contralateral) central nucleus; the region of the optic chiasma contains in addition to visual fibres and the commissure of Gudden, a small fasciculus proceeding from the reticuloventral nucleus to the external geniculate body of the opposite side. Thalamo-striate connections are numerous, as previously noted by Sachs. Of the thalamo-cortical relationships, the author shows that the posterior third of the posterior nucleus is connected with the occipital pole; the internal geniculate body is connected with the auditory region of the temporal lobe; the anterior portion of the posterior nucleus is linked with the cortex over the anterior two-thirds of the brain, both anterior and posterior to the cruciate sulcus; the lateral nucleus is connected with the cortex behind the cruciate sulcus. M. C.

[195] **The innervation of striated muscle.**—H. J. Wilkinson. *Med. Jour. of Australia*, 1929, ii, 768.

This is a long, finely illustrated, and well-considered investigation of a histological problem on the solution of which numerous theories of function depend, for better or worse. It should be consulted in detail by all whom the matter interests.

"After a careful and long continued search through a wide range of material, and after a critical examination of some of the original preparations reproductions of which have been published as evidence of the sympathetic innervation of striated muscle fibres, I cannot but adopt a sceptical attitude towards the whole question and conclude that it is very doubtful whether any histological evidence of a direct innervation of striated muscle fibres by sympathetic nerves exists."

The author's summary is here cited verbatim :

1. All muscle fibres are innervated solely by somatic nerves, that is, cerebrospinal nerves. Hunter's hypothesis based on the work of Kulchitsky is therefore untenable.

2. *Terminaisons en grappes* that occur in lower vertebrates may be either (i) ' immature ' forms of motor terminations or (ii) afferent.

3. A description of the innervation of muscle spindles is given. The somatic motor innervation of the intrafusal fibres both in lower vertebrates and in mammals is confirmed.

4. Negative findings are reported with regard to the sympathetic innervation of striated muscle fibres and a criticism of Boeke's and Agduhr's original preparations is given.

5. The view is put forward that in striated muscle tissue sympathetic fibres supply only the blood vessels and are concerned only with the regulation of the circulation.

6. The possible mode of action of the sympathetic and of vasodilator nerves is also described.

7. The plurisegmental control of muscle fibres is discussed and new evidence is presented.

J. S. P.

[196] **The diuretic hormone of the brain** (Die diuretischen Hormone des Gehirns).—J. Olivet. *Münch. med. Woch.*, 1930, lxxvii, 58.

After puncture of the fourth ventricle, animals were bled 24 hours later. Serum collected from the blood was then injected into untouched animals. If the serum was given intramuscularly no effect was observed, but if it was given intravenously, diuresis commenced within a few minutes. Serum from control and untouched animals did not produce the same effect. The author suggests, as a result of this work, that the tween-brain or the centres in the floor of the fourth ventricle have a controlling influence over the production of a diuretic hormone which acts on the kidneys through the blood-stream. Further work appears to be necessary to confirm and elaborate this thesis.

E. A. C.

[197] **Tests for sensibility.**—N. C. LAMAR. *Arch. of Neurol. and Psychiat.*, 1930, xxiii, 228.

A STUDY of ' normal ' persons was undertaken in order to determine the number and types of errors these subjects made—as compared with the errors ' pathological ' subjects make—when tested for various types of sensibility.

Certain of Head's tests were selected for the investigation because of their wider clinical use and because of their comparatively easy applicability. They appeal mostly to the cortical sensory function. These tests are : the appreciation of shape in two dimensions, the appreciation of size, the recognition of the position of the forefinger and great toe when passively moved, the appreciation of the differences in texture and the recognition of common objects.

It was found that ' normal ' subjects make many errors identical with those obtained in testing ' pathological ' sensory material. Many subjects are suggestible, and it is best that the examiner refrain from confusing his subjects should good results be obtained. The reason for the mistakes made by ' normal' subjects may be attributed in part to the tests and methods themselves, but largely to lack of attention and concentration on the part of both the subjects tested and the examiner.

In the test for the appreciation of similarity and difference in textures, the high percentage of errors encountered with identical pieces of silk and linen—wool and velvet to a lesser extent—is difficult to explain away entirely on the basis of a lack of attention and concentration. Some subjects may never have learned to use the sense of touch where the finer qualities of stuffs are concerned. (Further investigations need to be done with this test.)

Lastly, it is believed that these tests may be used in an ordinary hospital examining room with good results, and that the interpretation of the observations may be greatly facilitated, provided one has an appreciation of what the ' normal ' subject does under similar circumstances of testing.

R. S. M.

[198] **The significance of the afferent impulses from the skin in the mechanism of abdominal pain.**—JOHN MORLEY. *Lancet*, 1929, ii, 1240.

RELYING on a series of personal investigations, the author criticises the received theory of a viscero-sensory reflex to account for abdominal pain. In patients with distinctly localised abdominal pain subcutaneous infiltration of the painful area with novocain causes complete or partial relief. Further, in cases of shoulder-tip pain from irritation of the peritoneum under the diaphragm similar procedures give similar relief. From these and other experiences it seems to the author probable that the ' peritoneo-cutaneous radiation ' theory of referred pain is correct, and that Mackenzie's hypothesis of a viscero-sensory reflex cannot be sustained.

J. S. P.

[199] **The influence of intense auditory stimuli on arterial pressure in normal persons, and in subjects with labyrinthine deafness** (L'influence des excitations auditives intenses sur la pression artérielle chez les normaux et chez les sourds labyrinthiques).—R. NYSSEN and J. HELSMOORTEL Junr. *Jour. de neurol. et de psychiat.*, 1930, xxx, 47.

THE conclusions reached by the authors are as follows :

1. Intense auditory stimuli increase blood-pressure—mainly the systolic pressure.

2. They act independently of the associated emotional and painful factors.

3. The stimuli probably act on the blood-pressure by way of extra-cochlear fibres.

4. This phenomenon cannot therefore be utilized as a test of cochlear excitability. M. C.

NEUROPATHOLOGY.

[200] **The Kahn reaction with spinal fluid.**—R. L. KAHN and ELIZABETH MCDERMOTT. *Amer. Jour. of Syphilis*, 1929, xiii, 557.

THE Kahn reaction applied to serum in the diagnosis of syphilis has been satisfactory in the hands of most workers. The test applied to the cerebrospinal fluid has, however, been attended with certain difficulties in technique, which render the test less valuable than it might be. The present writers have undertaken the task of minimising the sources of error in the test by certain modifications of the original. Two steps in the procedure have been altered : (1) the percentage of saturation, and (2) the sensitization of antigen. It was already recognised by Kendrick and Kahn that the total globulin obtained by saturating the fluid to 50 per cent. with ammonium sulphate gave more sensitive reactions than the portion of globulin obtained by 40 per cent. saturation. It is known that the sensitiveness of antigen is greater when mixed with saline indicated by the titer, than when mixed with saline in excess of the titer. These two possibilities for increasing the sensitiveness of the reaction with cerebrospinal fluid have been tested by the present writers, and their results summarised. Promising results have already been obtained in serum using sensitised antigen—the so-called ' presumptive procedure '—the sensitiveness being especially marked in cases undergoing treatment, and also valuable in detecting untreated cases.

Six sets of experiments were done :

(1) Using 40 per cent. and 50 per cent. ammonium sulphate.—This experiment included 311 tests, and showed a result in favour of the 50 per cent. saturation.

(2) Using varying antigen.—A series of tests was done using 50 per cent. saturation with 1+1·1 antigen, and using 40 per cent. saturation with an antigen of 1+1·3. The results were definitely in favour of the former.

(3) Using 40 per cent. saturation with standard antigen, and 50 per cent. with sensitised antigen.—297 tests were done. The results showed increased sensitiveness with 'sensitised' over 'standard' antigen.

(4) Using 50 per cent. with 'standard' and with 'sensitised' antigen. —The results showed 12 per cent. more positives with sensitised than with standard antigen.

(5) Using increased concentration of globulin, 20 times instead of 10 times, with standard and with sensitised antigen.

(6) Using increased concentration with sensitised antigen only (447 cases).—The result was a marked increase of sensitiveness with globulin solution solution of 20 times concentration, at any rate with weaker fluids, but with strongly positive fluids the weaker concentration gave better results. The final conclusion reached is, however, against the substitution of 20 for 10 times concentration.

From these experiments the authors conclude that the Kahn test, in which the standard antigen is employed, is more sensitive when carried out with the total globulin obtained by the 50 per cent. saturation with ammonium sulphate. This method, however, is not free from falsely negative reactions. The 'presumptive Kahn test' with spinal fluid in which sensitised antigen is employed, is considerably more sensitive than the regular test.

E. O'F.

[201] **The clinical value of the presumptive Kahn test with spinal fluids.**—K. M. DAVENPORT. *Amer. Jour. of Syphilis*, 1929, xiii, 575.

THE term 'presumptive' is used by the author to emphasize the fact that, until clinical studies established the value of the test, its results must be accepted guardedly. This differs from the regular test in that a small amount of ether-soluble-alcohol-soluble lipoid is added to the ether-insoluble-alcohol-soluble lipoid which is used in the regular test.

The number of cases examined was 473. Of these, 115 were undiagnosed and untreated, and 359 were treated cases.

Results.—In 100 of the first group, there was complete agreement with this test: 30 positive, 70 negative. There was disagreement in 15 cases. Of the second group of treated cases, 243 cases requiring further treatment gave positive results; 41 cases requiring no further treatment gave negative results; and 23 showing no evidence of cerebrospinal syphilis gave negative results.

Discrepancies.—Forty-six positive reactions were obtained in 23 patients who were clinically free from symptoms—the regular Kahn reaction being negative. Four negative results were obtained in 3 patients who should have further therapy.

The 43 cases giving positive 'presumptive,' but negative regular Kahn reactions, were cases of primary, secondary, latent and late syphilis; the first suggesting a very early meningeal involvement, the last suggesting that an

invasion by the spirochæte had occurred previously, the small residue of which gives rise to a positive ' presumptive ' test. The final conclusion is that the ' presumptive Kahn test ' is highly sensitive ; thus it is a check on the regular Kahn reaction and stimulates more careful clinical examination.

With regard to the positive results obtained in syphilitic cases in the absence of clinical evidence of neurosyphilis, judgement must be withheld for the present.

E. O'F.

[202] **The clinical value of the Kahn Test with spinal fluids**.—K. M. Davenport. *Amer. Jour. of Syphilis*, 1929, xiii, 570.

Most reports on the Kahn test have been done with the object of deciding its value relative to other tests for syphilis. Davenport compares his chemical results with clinical findings, and bases his results on the study of 487 cases examined with the regular Kahn test (standard antigen and cerebrospinal fluid concentrated to ten times by means of 50 per cent. saturation with ammonium sulphate).

Two classes of cases were investigated :

(1) Those diagnosed as syphilis.

(2) Those which had received antisyphilitic treatment.

Of 118 cases sent for diagnosis, 27 were diagnosed as neurosyphilis, and gave positive results ; 84 cases clinically free from neurosyphilis gave negative results ; 5 cases of neurosyphilis gave negative results. Three hundred and sixty-nine examinations were made on treated cases : 227 positive results were obtained in cases requiring further treatment ; 65 negative results on patients free from neurosyphilis, and 40 negative results on atients not requiring further treatment. Thirty-seven negative results were obtained in cases requiring further treatment.

In all, 487 tests were done. In one group of 118 untreated cases, 27 positive and 84 negative reactions were in agreement with clinical findings. Five negative reactions were found in cases of neurosyphilis. In the second group of 369 treated cases, 227 positive and 105 negative reactions corresponded to clinical findings. Thirty-seven negative reactions were obtained on 23 patients treated for neurosyphilis and needing further treatment.

E. O'F.

[203] **The sigma reaction in the blood and spinal fluid in nervous diseases** (Die Sigma-reaktion im Blutserum und in der spinal Flüssigkeit bei Nervenleiden).—Knud H. Krabbe. *Acta Psychiat. et Neurol.*, 1927, ii, 251.

In 587 patients with various nervous diseases the sigma reaction of Dreyer and Ward was found to be rather more sensitive than the Wassermann reaction

with heart extract, and as sensitive as that with syphilitic extract. The cerebrospinal fluid gave similar results with the sigma and the Wassermann reaction. The former reaction was usually positive in neurosyphilitic cases when others (such as the cell, albumen and globulin reactions) were positive. It is noteworthy that of nineteen cases of neurosyphilis with negative spinal fluids six were cases of tabes dorsalis. Exact figures are however not given by which the reactions in the cerebrospinal fluid might be compared with one another, and the paper therefore does not disprove the general impression that the sigma reaction is less satisfactory than the Wassermann reaction for use with the fluid.

J. G. G.

[204] **Studies on the Takata-Ara reaction for the cerebrospinal fluid** (Études sur la réaction de Takata-Ara dans le liquide céphalo-rachidien).—St. Draganesco. *Ann. de méd.*, 1928, xxiii, 74.

The author has studied the reaction with a colloidal mixture of mercuric chloride and basic fuchsin proposed by Takata and Ara. While confirming the positive results given by the reaction in neurosyphilis and the negative reactions with normal fluids claimed by the Japanese authors, he obtained positive reactions of the metasyphilitic type (comparable to those in general paralysis) from cases of meningitis and sometimes in disseminated sclerosis, abscess of the brain, and compression of the cord. Reactions of the meningitic type were given by cases of compression of the spinal cord and by one case of cerebral tumour. The author found the reaction less sensitive than the colloidal benzoin reaction in disseminated sclerosis.

J. G. G.

[205] **Meningiomata arising from the olfactory groove** (Über die von der Olfactoriusrinne ausgehenden Meningiome und über die Meningiome im allgemeinen).—A. Bostroem and H. Spatz. *Der Nervenarzt*, 1929, ii, 505.

The authors describe four cases of meningioma arising from the olfactory groove, and point out the various sites of predilection on the base, where arachnoid and dura come together, at which this particular type of neoplasm is apt to develop. They also examine the semiology of the olfactory group, and their differential diagnosis. No clinical novelty emerges therefrom.

J. V.

[206] **On acquired split-formations of the cerebral cortex** (Über erworbene Spaltbildungen in der Grosshirnrinde; zugleich ein Beitrag zur Frage der pathologischen Markfasergeflechte (plaques fibromyeliniques) der Rinde).—M. Mittelbach. *Beitr. z. path. Anat. u. z. allg. Pathol.*, 1929, lxxxiii, 445.

An unusual macroscopical change was seen in five brain cases, viz., relatively small splits along the convexity of certain convolutions, parallel to the course

of the gyri. The microscope revealed the presence of a funnel- or crater-like depression, its point downwards and reaching the white matter, in which by Nissl colouration the layers of cortical cells were shown to have lost their staining capacity. In accordance with this change in the parenchyma the glia formed a rich cicatrix of fibrils; at the same time loss of myelin sheaths was noted in nerve-fibres of the part affected, and a new formation of others. The whole formed a condition analogous to the 'plaques fibromyeliniques' described by the Vogts. These alterations are not developmental anomalies but the end-result of a process of disintegration, and are to be distinguished from both cortical change secondary to arteriosclerosis of pial vessels and 'granular atrophy' of the cortex consecutive to the same vascular process. A traumatic origin for the splitting is not excluded. 'Plaques fibromyeliniques' can be regarded as attempts at regeneration.

S. A. K. W.

[207] **Impacted cyst in the third ventricle of the brain.**—A. M. Drennan. *Brit. Med. Jour.*, 1929, ii, 47.

The author reports two cases in which a colloid-containing cyst in the third ventricle of the brain caused hydrocephalus by blocking the upper end of the iter of Sylvius. The appearance of the cysts was identical with that described by Kinnier Wilson in 1906. Drennan found that they arose from the choroid plexus and are analogous to the cystic distensions of the plexus which frequently occur in the lateral ventricles in elderly and insane patients.

J. G. G.

[208] **'Congenital' aneurysm of the cerebral arteries.**—F.H. K. Green. *Quart. Jour. Med.*, 1928, xxi, 419.

In this paper are described three cases of 'spontaneous subarachnoid hæmorrhage' due to rupture of saccular aneurysms upon branches of the circle of Willis.

Two of the patients were young (aged 21 and 30 respectively). The third was aged 49, but she showed comparatively little evidence of arteriosclerosis. In each case a syphilitic or 'mycotic' origin for the aneurysms could practically be excluded, both on clinical and pathological grounds. In two cases in which inquiry was made, no history of old or recent trauma to the head was elicited.

Detailed histological examination has been made of the wall of each of the five aneurysms found in these three cases; a report is given of the serial sections through a vessel showing what appeared to be a very early stage in the production of aneurysm. The larger sacs showed the microscopical changes described by Eppinger under the heading of 'congenital' aneurysms. The smallest (youngest) aneurysm showed a localized defect in its muscular and elastic coats, which would seem to be consistent with Eppinger's hypothesis of a congenital basis for these lesions. One of the patients whose cases form the subject of this

paper showed, post-mortem, in addition to three cerebral aneurysms, cardio-vascular maldevelopments in the form of coaretation of the aortic isthmus, a bicuspid aortic orifice, and fenestration of the mitral cusps.

Reference is made to three other cases from the literature, in which the rare condition of coaretation of the aorta has been associated with the presence of one or more aneurysms in the brain. This association lends additional support to the view that aneurysm of the cerebral arteries may, like the aortic deformity, have a congenital basis in local maldevelopment of the vessel-wall.

R. M. S.

[209] **The pathogenesis of, and propagation of the virus in, experimental poliomyelitis.**—R. W. FAIRBROTHER and E. WESTON HURST. *Jour. of Pathol. and Bacteriol.*, 1930, xxxiii, 17.

THE authors have studied the spread of the virus in the nervous system of infected monkeys. When injections of virulent material were made into the brain, the site of inoculation remained virulent for 4 to 5 days, but thereafter lost its virulence. After the fifth day the pons and the spinal cord became virulent, but usually not until the first symptoms of paralysis had appeared. After intranasal infection the olfactory bulb was the first part of the brain to become virulent, indicating a spread of virus along the olfactory nerves. After injections directly into the ventricles, the cerebrospinal fluid might remain virulent for several days, but it was never found to be virulent when the virus had been inoculated either into the nasal mucosa or the cerebral tissue.

The observation made by Römer that paralysis usually appears first in the lower limb of the side opposite to that of the cerebral inoculation was confirmed, and is cited as evidence that the virus spreads along the axons rather than by the meninges or the ventricular system. By histological methods it was shown that the inflammation passed from the cortex first to the thalamus and midbrain and thence to the pons, spinal cord and the opposite hemisphere. This march of events also suggested a spread by axonal channels. Meningeal infiltrations were sometimes due to actual inflammation of the meninges, but more often appeared to result from the discharge of inflammatory cells along the perivascular spaces from deeper areas of inflammation. The authors conclude that the virus does not readily multiply in the cerebral cortex, but rather tends to pass via the nerve fibres to its seat of election, the anterior horn cells of the spinal cord, usually selecting first those of the lumbar enlargement.

J. G. C

[210] **The histology of experimental poliomyelitis.**—E. WESTON HURST. *Jour. of Pathol. and Bacteriol.*, 1929, xxxii, 457.

THE author has studied the experimental disease in monkeys at all stages, using up-to-date histological methods. He finds that the chief incidence of

the disease is on the nerve-cells of the ventral horns of the cord, which begin to degenerate as soon as the earliest signs of inflammation appear in their neighbourhood. The degeneration of these cells is therefore in no way due to the accompanying interstitial inflammation. In the cellular reaction polymorphonuclear cells at first play a large part, and their presence may be demonstrated even in the later stages by the oxydase reaction. Later the microglia becomes proliferated, giving rise to the 'polyblasts' and 'elongated glial cells' of the older authors. The hæmorrhages so frequently seen appear to be largely due to rupture of congested vessels at the autopsy.

J. G. G.

[211] **The significance of coccal organisms in experimental poliomyelitis.**—R. W. Fairbrother. *Jour. of Pathol. and Bacteriol.*, 1929, xxxii, 435.

The author discusses the presence of cocci in the blood and nervous system of monkeys experimentally infected with poliomyelitis which have been found by several American observers. By using the greatest care to prevent accidental contamination he obtained sterile material which contained the virus of poliomyelitis, but unless great care was taken cocci of various kinds were frequently found in cultures. He concludes that the cocci which have been found by others, as well as those which he himself cultivated, are airborne contaminants, or terminal invaders of sick animals, and have no etiological relationship to the disease.

J. G. G.

[212] **Comparative observations on the cellular reactions of interstitial tissues in the body and the central nervous system** (Vergleichende Betrachtungen über zelluläre Reaktionen des (mesodermalen) Stützgewebes im Körper und der (ektodermalen) Stützsubstanz im Zentralnervensystem).—M. H. Corten. *Münch. med. Woch.*, 1930, lxxvii, 112.

The author draws attention to the resemblance between the cellular reaction to inflammatory processes in the nervous system and that which takes place in other tissues of the body. Fibroblasts repair while polyblasts scavenger. From this he draws an analogy of the macroglia or astrocytes dealing with repair and of the microglia or Hortega cells dealing with removal of the products of disintegration. Thus far, he offers no new theory, but when he states that the reaction in the nervous tissue is limited to ectodermal cells, he treads on controversial ground, since he assumes that microglia is an ectodermal derivative. This is an expression of a German school of thought and is in direct contrast with that of the Spanish school, which has received ample verification in other countries. His deductions may, therefore, be erroneous, and are certainly open to considerable criticism.

E. A. C.

[213] **Thé use of infra-red light in the microscopic study of the central nervous system** (Utilization de l'infra-rouge dans l'étude microscopique du systême nerveux central à l'état normal et pathologique).—I. BERTRAND and G. HADZIGEORGIOU. *Ann. de méd.*, 1928, xxiv, 119.

THE technique described by the authors consists in staining paraffin sections of nervous tissue with cryptocyanine and taking photographs on specially sensitised plates using a very deep red Wratten filter, nos. 87, 88 or 88a. The method gives excellent pictures of neuroglia fibrils, but its chief value has resided in the demonstration of mitochondria in normal and pathological nerve-cells. This structure had been studied by Cowdray in the nerve-cells of the dorsal root ganglia, but had not been previously described in the nerve-cells of the central nervous system. Unlike the Golgi apparatus it does not alter its appearance during the phenomena of chromatolysis, but it becomes lost when the cell is filled with lipochrome as in amaurotic family idiocy and senile dementia.

J. G. G.

SENSORIMOTOR NEUROLOGY.

[214] **Holmgren's frontal reflex** (Beitrag zur Kenntnis des Holmgrenschen Frontalreflexes).—ALBERT GRONBERG. *Acta. med. Scand.* (Supplementum), 1928, xxv.

HOLMGREN'S frontal reflex is constituted by a bilateral elevation of the eyebrows elicited by rubbing or stroking the skin of the brow near the midline. In this way the phenomenon belongs to the group of supraorbital reflexes examined previously by MacCarthy (1901) and Bechterew (1903). The author has studied the behaviour of Holmgren's reflex in 444 individuals, comprising 300 normal subjects and 144 patients suffering from various diseases.

The main conclusions of the author may thus be tabulated :

1. A phenomenon simulating a positive frontal reflex (Fr. R.) can occur in cases without brain disease.

2. A positive or negative (Fr. R.) is not connected with any particular clinical picture.

3. Aphasia is more often combined with a positive than a negative (Fr. R.) ; an extrapyramidal type of tremor is very frequently associated with a positive Fr. R.

4. The Fr. R. behaves in states of lethargy and coma as other reflexes, i.e., it disappears when the coma is deep.

5. A positive Fr. R. is seen in general intoxications ; in injuries of the cortex and meninges ; in diseases of the basal ganglia accompanied or not by cortical lesions.

6. No certain anatomical localization has been traceable as the basis of a positive Fr. R.

7. When increased mechano-muscular irritability is demonstrable, a cerebral lesion must not be presumed, even though a positive Fr. R. be present.

Despite the equivocal nature of Holmgren's frontal reflex and its presence in the normal subject, the author has devoted a monograph of 190 pages to its study.

M. C.

[215] **Muscular dystrophy and encephalitis** (Muskeldystrophie und Enzephalitis).—H. KLEIN. *Münch. med. Woch.*, 1930, lxxvii, 308.

A CASE is recorded of a woman, who, following an acute febrile illness involving lungs, stomach and kidneys, developed weakness of the legs and also of the muscles of the shoulder girdle. The distribution of the weakness was more or less that of a myodystrophy. Over and above this she developed an extreme degree of salivation; this was also associated with tachycardia and prominent eyes. The author proceeds to review Bramwell's Bradshaw Lecture and to epitomize the work of Kuré on the muscle changes produced by section of the sympathetic fibres. The description of his case is too meagre, and we are left with a feeling of doubt as to the precise character of the muscle weakness. Further, to diagnose encephalitis on excessive salivation alone is somewhat precarious.

E. A. C.

[216] **Idiopathic auditory aphasia [congenital aphasia] in monozygotic twins** (Un cas d'audi-mutité idiopathique (aphasie congénitale) chez des jumeaux monozygotiques).—JACQUES LEY. *L'Encéphale*, 1929, xxiv, 121.

THE cases of the homologous twins described at great length in this paper are of much scientific interest. From the standpoint of identical twins the two children, boys, age eight when examined, are as good examples of the condition as can be imagined. According to the author, they offer evidence of 'inverse symmetry,' while their somatic and psychical development is for practical purposes identical. Neurological examination reveals merely a degree of dyspraxia. They hear quite well and exhibit no signs of organic affection apart from their 'congenital aphasia.'

This consists in a characteristic congenital auditory imperception, and it is given full description and analysis. The literature on the subject is reviewed (not, however, with any completeness) and the author states he has found no instance of the affection recorded before in identical twins. From the viewpoint of pathogenesis he argues that some germinal modification is responsible for the condition and that it must have a definite anatomical basis. What this may be, however, is not discussed in any detail.

S. A. K. W.

[217] **The respiratory disorders of epidemic encephalitis** (Contributions cliniques et physio-pathologiques à l'étude des troubles respiratoires dans l'encéphalite épidémique).—G. MARINESCO and O. SAGER. *Bull. de la sect. scient. de l'académie roumaine*, 1929, xii, 1.

PROFESSOR Marinesco and his colleague have conducted a long series of clinical investigations on the respiratory complications of epidemic encephalitis and have formulated the following conclusions, among others :

1. The varieties seen include micropnoea, bradypnoea, tachypnoea, respiratory rhythmias and respiratory tics.

2. Cheyne-Stokes rhythm is very rare in this connexion ; it has been met with once, persisting for no less than two years without modification.

3. Another rare sequel is a combination of apnoeic intervals with spasms of the musculature of the trunk.

4. Minimal emotion sometimes precipitates attacks of tachypnoea.

5. By utilising various clinical experimental methods the authors have shown that most of the phenomena are due to abnormal function of the respiratory centres in the regio mesencephalo-hypothalamica.

6. On the other hand, bulbar respiratory centres appear in all instances to be in a state of functional integrity. During sleep there is evidence that the abnormal condition of the former interferes with the regular automatism of the latter.

7. A threefold division is suggested into (*a*) respiratory disorder secondary to respiratory rhythmias and tics ; (*b*) secondary to functional impairment of upper respiratory centres ; (*c*) secondary to disturbance of emotional expression.

J. V.

[218] **Comments on the pathogenesis, diagnosis and treatment of serous meningitis** (Considerations sur la pathogénie, le diagnostic et la traitement des méningites séreuses).—G. MARINESCO, O. SAGER and GR. GRIGORESCO. *Jour. de neurol. et de psychiat.*, 1930, xxx, 19.

THE authors believe that two factors are essential for the production of a serous meningitis, viz. a predisposing factor of endocrine, vegetative or vascular character, to which is added a determining action of toxaemic or infective nature. Four clinical points are of diagnostic value, particularly in differentiation from cerebral tumour. The authors emphasize the early appearance of papilloedema; hypertension of the cerebrospinal fluid with an Ayala ratio greater than 6 ; the paucity or lack of localizing signs, and the presence of somnolence. Treatment comprises lumbar puncture at intervals of three or four days, performed not more than three times altogether. A larger number of lumbar punctures tends to cause an increased production of fluid. At the same time, injections of hypertonic serum glucose (20 c.c. of a 33 per cent. solution) are given once or twice daily. In one case daily injections of atropine (1mg.) were also prescribed. Cases with a syphilitic basis also require appropriate specific

measures. If no recession is demonstrable in the degree of disc swelling at the end of two weeks, X-ray treatment is tried. When this also is unsuccessful a decompressive operation is indicated.

M. C.

[219] **Myeloradiculitis.**—I. STRAUSS and A. M. RABINER. *Arch. of Neurol. and Psychiat*, 1930, xxiii, 240.

THE clinical syndrome, for which the above term has been coined, is characterised by the rapid development of motor and sensory signs, indicating a predominant involvement of the nerve roots and a varying implication of the cord substance. In several of the authors' seven cases infection of the upper respiratory tract was a prominent feature and in all recovery was extraordinarily prompt and integral.

The symptomatology of these cases bears a close resemblance to that of several analogous syndromes and notably to those described during the War as 'acute infective polyneuritis.' The points of difference are few and probably the group of cases presented by Strauss and Rabiner are simply variants of the former pathological process.

R. M. S.

[220] **A pseudopolyneuritic variety of disseminated sclerosis** (Sur une forme pseudopolynévritique de la sclérose en plaques).—I. MINEA. *Bull. de la soc. reum. de neurol.*, 1928, v, 27.

THE case described is that of a young man of 28, who exhibited quite typical symptoms and signs of disseminated sclerosis and in addition developed peripheral amyotrophy with diminution or loss of tendon reflexes. Firm pressure over peripheral nerves caused pain, and subjective pains were also present.

Autopsy revealed the characteristic picture of subacute disseminated sclerosis. Further, mild interstitial neuritis was found in several nerve trunks examined. An emulsion from the cord, injected into the sciatic of rabbits, produced a well-marked local periaxial segmental neuritis.

It is claimed that the case proves the possibility of invasion of the peripheral nervous system by the virus of the affection.

J. V.

[221] **Polyradiculoneuritis with albumino-cytological dissociation and bilateral facial palsy** (Polyradiculonévrite avec dissociation albumino-cytologique et paralysie faciale double).—H. HENDRICK. *Jour. de neurol. et de psychiat.*, 1929, xxix, 584.

A MALE patient, aged 49, with uneventful previous health, became ill with an irritation in the throat and a cough. About two weeks later he was awakened by pain in the loins and he noticed that everything he touched seemed icy cold.

The pain persisted and the legs became weak, so that at the end of two days he was unable to walk. Sphincter disorders appeared at the same time. Facial asymmetry and difficulty in mastication appeared a week later. Examination demonstrated a right-sided facial paralysis of peripheral type. Diplopia was present on looking to the right. The neck muscles were stiff and attempts at passive manipulation evoked pain. There was marked rigidity of the spine and Kernig's sign was demonstrable. Palpation of the muscles was very painful; a hyperæsthesia existed over the trunk, and on the right side of the abdomen light touch produced a sensation of burning. The triceps and supinator perks were unobtainable; the lower abdominal responses were feeble; cremasteric reflexes were absent; knee-jerks were sluggish, and ankle-jerks absent. Plantar stimulation was followed by a general withdrawal of the whole lower limb. Gross sensory incordination was present. Power in the arms was somewhat reduced. The cerebrospinal fluid was clear and gave the following results on analysis: 2 lymphocytes per c.mm.; albumin 85 mg. per cent.; glucose 80 mg. per cent. Whilst under observation the patient developed a left-sided facial palsy. The pains improved and the power of walking returned. The stiffness of the neck disappeared and Kernig's sign became difficult to elicit. Myoclonic jerkings appeared in the muscles of the face, the deltoids and infraspinati. Hyperæsthesia of the trunk was no longer present; the knee-jerks became normal but the ankle-jerks remained in abeyance.

M. C.

[222] **Chorea and lenticular nucleus** (Chorea und Linsenkern).—Niessl von Mayendorf. *Monats. f. Psychiat. u. Neurol.*, 1930, lxxiv, 273.

A very elaborate study of the case of a feebleminded woman of 26, with involuntary movements of choreo-athetoid type, especially on the left side, complicated at times with others more of the tremor variety, is reported in this interesting communication. Autopsy showed a region of cortical and subcortical softening and loss of substance situated in the right hemisphere, immediately behind the postcentral gyrus about its middle, and extending posteriorly into the upper parietal lobe. In addition, however, a number of much smaller lesions were present (third right frontal, above the red nucleus, in the transverse temporal gyri, etc.).

More than 50 pages of the article are taken up with pathological descriptions. It is shown in a conclusive manner that neither corpus striatum nor system of the superior cerebellar peduncle has in this case anything whatever to do with the choreic symptoms of the patient. The author justly argues that the striatal theory of chorea cannot be sustained.

S. A. K. W.

[223] **The value of hyperpnoea in the diagnosis of epilepsy** (La valeur de l'hyperpnée dans le diagnostic de l'épilépsie).—D. NYSSEN. *Jour. de neurol. et. de psychiat.*, 1929, xxix, 600.

IN a series of 41 cases of epilepsy, the author has experimented on the precipitation of an attack by means of hyperventilation of the lungs. He concludes that hyperpnoea is a harmless measure which is capable of provoking certain reactions in chronic epileptics. Before it can be regarded as a pathognomonic test for epilepsy the basic optimal factors will have to be established ; in the interim, the author suggests that the hyperpnoea be maintained for half an hour. Failure of over-ventilation to produce an attack does not rule out the diagnosis of epilepsy ; positive results were obtained in only 15 per cent. of his cases. Motor and sensory symptoms, and even disorders of consciousness, can occur with the hyperpnoea, both in epileptics and in normal subjects ; only manifestations of an essentially epileptic order can be regarded as constituting a positive result.

M. C.

[224] **Paraplegia in flexion.**—G. W. HALL and E. F. HIRSCH. *Arch. of Neurol. and Psychiat.*, 1930, xxiii, 257.

ALTHOUGH paraplegia in flexion was described as long ago as 1837, its association with subacute combined degeneration has only once been recorded. To that case the authors add another in which the lesions were largely in the posterolateral aspects of the cord. Extensive degeneration of the pyramidal tract was observed and in this it differed from the majority of cases reported in the literature.

An additional point of interest was the observation that withdrawal of spinal fluid markedly aggravated the condition.

R. M. S.

[225] **Anterior sacral meningocele.**—A. M. DRENNAN. *Jour. of Pathol. and Bacteriol.*, 1929, xxxii, 843.

IN reporting this case the author refers to the rarity of the condition and to the frequency of mistaken diagnosis. In the present case the diagnosis of sarcoma was made. Infection of the sac with B. coli followed the operation performed to remove the tumour, and the patient died of generalised meningitis.

J. G. G.

[226] **Nerve-stretching in diagnosis** (Die Nervendehnung als diagnostisches Prinzip ergibt eine Reihe neuer Nervenphänomene).—KARL BRAGARD. *Münch. med. Woch.*, 1929, lxxvi, 1999.

A CAREFUL study has been made in the cadaver as to the best way to cause stretching of the peripheral nerves. Excellent descriptions along with illus-

trations are given as to the technique best adapted for the purpose. The application of this method of investigation to clinical medicine, is of doubtful value, except in cases of peripheral neuritis : it may be an aid in differentiating peripheral from central lesions, but most observers will prefer to depend on other criteria than stretching peripheral nerves.

E. A. C.

[227] **Bilateral congenital facial paralysis.**—B. E. Bonan and R. W. Owens. *Amer. Jour. Dis. Child.*, 1929, xxxviii, 1256.

Congenital facial paralysis is divisible into (1) cases of obstetric origin, and (2) those of spontaneous or non-obstetric origin. The former includes paralysis from forceps trauma and from antepartum or intrapartum compression. Forceps cases are usually unilateral and peripheral. It is stated, none the less, that central paralyses of this kind are known, but rigid proof of their nature is not perhaps forthcoming. The prognosis is favourable.

Antepartum compression results from pressure of the head of the fœtus against its own shoulder, or against maternal bony prominences. The intrapartum variety consists of peripheral facial palsy associated with evidence of injury in the region of the nerve, such as œdema, extravasation of blood, and depressions in the skull. The prognosis of the latter cases is as a rule satisfactory ; of the former, doubtful.

The spontaneous type is thought to be due to agenesis of the nuclei of the seventh nerve on one or both sides, symptoms varying within rather wide limits. Other cranial nerves, e.g. the sixth and the twelfth, may be similarly affected. Cases of uncomplicated bilateral facial paralysis of nuclear origin are not common ; the authors here report a personal case.

J. S. P.

[228] **Encephalography : roentgenological and clinical considerations for its use.**—H. K. Pancoast and Temple Fay. *Amer. Jour. Roentgenol. and Radium Ther.*, 1929, xxi, 421.

The interest of this article resides in its detailed description of encephalographic technique and on the claims made for its clinical and surgical value. Encephalography is stated to have led to the recognition of gross organic changes in the structure of the brain where these have given few, if any, symptoms to indicate their presence or extent. Epilepsy is a field which has been particularly fruitful in that about 80 per cent. of ' idiopathic ' cases, in which encephalography has been undertaken, have shown pronounced abnormal changes. The operability of a given case may depend to a large extent on what the encephalogram reveals.

From recorded and personal observations it is remarked that the mortality of the procedure is less than 2 per cent. The authors have undertaken it in cases ranging in age from three months to 84 years, without danger. The

intense headache accompanying the method can be controlled by administration of 15 grs. of chloral hydrate one hour before encephalography, and can be repeated in four hours. Codeine is also recommended. J. S. P.

PROGNOSIS AND TREATMENT.

[229] **Further contributions to the treatment of epilepsy.**—John P. Steel. *Jour. of Ment. Sci.*, 1929, lxxv, 685.

With regard to the administration of peptone, it is impossible to say which cases have reacted well. Generalizing, it might be safe to say that the younger cases showed a slightly better result. In only one case over 40 years of age was there any decrease in fits. There was a slight tendency for the fit to change from the major to the minor type. Peptone treatment seems to have warded off the stage of dementia and the cases so treated were much more manageable. Where patients have not reacted to peptone, or where its effect has not been sustained, intravenous injections of B. coli have been carried out. There was a marked improvement in the health of the skin and alimentary canal, and a decrease of fit-incidence. One patient had his number of fits halved. Where no benefit accrued from either of the foregoing treatments, a solution of papaverine sulphate (gr. 1 to oz. ½ was given). The action of the drug seems somewhat remote and cumulative. Two demented female epileptics became more tranquil, had fewer fits, and showed less tendency to relapse into stupor. In each case, the pre-epileptic period was less troublesome.

C. S. R.

[230] **Electro-coagulation in brain tumours** (Ueber die Anwendung der Elektrokoagulation bei Gehirntumouren).—H. Olivecrona. *Münch. med. Woch.*, 1930, lxxvii, 232 and 280.

The use of the diathermy current in cerebral surgery is discussed and its advantages expressed. Freedom from hæmorrhage and piece-meal extirpation are the benefits of this form of surgical technique. In the author's hand the method has proved of inestimable value. Tumours have been successfully removed with little or no damage to the surrounding healthy brain tissue. Undoubtedly, this advance in cerebral surgery is of great importance and offers a more hopeful prognosis in those cases which have been previously considered hopeless. E. A. C.

[231] **The adoption of a lordotic-kyphotic position for the spinal column in the acute stage of poliomyelitis** (Die Spannungsverhältnisse des Rückenmarks bei lordotischer und kyphotischer Einstellung der Wirbelsäule und ihre Bedeutung für die Behandlung des akuten Stadiums der Poliomyelitis).—Franz Becker. *Münch. med. Woch.*, 1929, lxxvi, 1547.

In order to produce relaxation of the meninges and avoid stretching of the spinal cord, the best position of the vertebrae is one of lordosis. The author

suggests that a plaster jacket for the spine should be used in the earliest stages of poliomyelitis and that the position of extreme lordosis should be adopted. By this method he believes that the inflammatory processes in the spinal cord will be lessened in severity and in duration. It is obvious that the discomfort of this posture will be a hindrance to its routine adoption, especially on such a dubious theoretical basis. Further, by the adoption of such a posture, the muscles of the abdomen and chest may be unduly stretched, and, if affected by the disease process may be retarded in their recovery or even completely damaged. E. A. C.

[232] **Forced drainage of the central nervous system.**—F. Fremont-Smith, J. J. Putman and Stanley Cobb. *Arch. of Neurol. and Psychiat.*, 1930, xxiii, 219.

Kubie's method of draining the central nervous system consists of allowing the cerebrospinal fluid to drain away through a lumbar puncture needle, at the same time making the blood hypotonic by the oral administration of water.

Employing this method on sixteen patients with non-suppurative disease of the central nervous system the authors were able to demonstrate that human blood serum is rendered hypotonic and that this dilution of the blood is reflected in the cerebrospinal fluid.

The therapeutic results of this mode of treatment, particularly in cases of disseminated sclerosis, were sufficiently encouraging to warrant further study. R. M. S.

Endocrinology.

[233] **Myasthenia gravis with status lymphaticus and multiple thymic granulomas.**—N. M. Alter and M. Osnato. *Arch. of Neurol. and Psychiat.*, 1930, xxiii, 345.

In the case reported in this paper myasthenia gravis was associated with status lymphaticus and multiple abnormalities of branchiogenic organs. Two thymic nodules, one in relation to the thyroid and the other in the mediastinum, showed advanced inflammatory lesions; while a striking feature was the parenchymatous goitre with displacement and enlargement of parathyroid and thymic tissue.

Study of the central and peripheral nervous system revealed nothing of significance. The striated muscles showed extensive lymphoid infiltration and atrophy of the fibres. R. M. S.

[234] **Progeria: review of the literature with report of a case.**—V. T. Curtin and H. F. Kotzen. *Amer. Jour. Dis. Child.*, 1929, xxxviii, 993.

So far as can be judged from the descriptions and photographs, the case here published belongs definitely to the rare progeria type.

It is that of a girl of 7, with the following characteristic signs: baldness, large head, narrow chest, and protuberant abdomen; old facial expression; tense skin, with prominent veins; no hairs in either eyelids or eyebrows; thickened and tortuous peripheral arteries, with B.P. 104 systolic; muscular atrophy, thickened and prominent joints. In addition, there were many hard, shotty glands in both anterior and posterior cervical chains.

Evidence of cardiac disease was present in the form of presystolic and systolic murmurs. Many other clinical details are recorded in the paper.

The patient died rather unexpectedly from what seemed to be a coronary thrombosis. Regrettably, no necropsy was allowed.

J. S. P.

[235] **The treatment of diabetes insipidus with pituitrin and vasopressin** (Die Behandlung des Diabetes Insipidus mit Pituitrin und Vaso pressin auf endonasalem und subkutanem Wege).—A. W. ELMER and M. SCHEPS. *Münch. med. Woch.*, 1929, lxxvi, 1917.

AFTER a careful study of the uses of pituitrin and vasopressin by the two routes, subcutaneous and intranasal, the authors reach the following conclusions: Pituitrin given as a snuff in diabetes insipidus is of value: administered in this way, larger doses are required than by the subcutaneous route: the snuff method is better than intranasal pledgets of wool soaked with pituitrin, because the application of the pledgets requires careful technique and they must be renewed every six hours; besides, the dose of pituitrin required is greater. Vasopressin subcutaneously is more effective than pituitrin; in powder form as a snuff it acts best.

E. A. C.

Psychopathology.

PSYCHOLOGY.

[236] **Second report on a Lamarckian experiment.**—WILLIAM MCDOUGALL. *Brit. Jour. of Psychol.*, 1930, xx, 201.

TWENTY-THREE generations of rats have been trained to the performance of a specific task. The rats of the successive generations have displayed increasing facility in mastering this task. Whereas rats of the control stocks make on the average about 165 errors before learning to avoid the shock, rats of the twenty-third generation of trained stock make on the average only 25 errors; the latter have acquired a greatly increased facility in mastering the task, the increase being measured by the difference between 165 and 25 shocks required for learning. The average degree of facility shown by any group of rats is in the main a function of their genetic constitution. In the light of our present knowledge there would seem to be only two ways in which such change of constitution as is shown by the rats of the trained stock can be

brought about : first, by steady selection of such variations or mutations as may occur in the direction of such change ; secondly, by transmission of modifications acquired by the rats in the course of training. It seems very improbable that selection can have played any appreciable part in producing the change of constitution here described ; and still more improbable that selection can have been the main or the sole process. It begins to look to the writer as though Lamarckian transmission were a real process in nature ; and he submits for criticism the proposition that, if continuance of the experiment, combining training with strongly adverse selection, should result in steadily increasing facility, the reality of Lamarckian transmission will have been demonstrated. C. S. R.

[237] **Maximum capacity and average achievement.**—S. Wyatt. *Brit. Jour. of Psychol.*, 1930, xx, 251.

It is suggested that the difference between maximum capacity recorded under the most favourable conditions and average achievement observed throughout a spell of work is a measure of the combined influence of factors which are detrimental to productive activity. A suitable measure of maximum capacity is the highest rate of working attained in a period of five minutes. This value is very consistent in the case of the same individual observed at corresponding times on different days. The application of this method to industrial procedure can be used to show (*a*) individual susceptibility to similar conditions of work ; (*b*) the total effect of unfavourable factors in different industrial processes ; (*c*) the approximate influence of particular factors responsible for reduced activity. When applied to the processes considered in this article, there is evidence to show that (*a*) one worker may be almost twice as susceptible as another to unfavourable elements associated with the conditions of work. (*b*) The quicker workers tend to deviate more than the slower operatives from their respective high speeds. (*c*) An imperfect relation exists between maximum and average rates of working, yet when all the workers in a group are actuated by a powerful incentive the degree of imperfection may be very slight. (*d*) The difference between maximum and average rates of working may vary from 12 to 38 per cent. in different processes. (*e*) A time-rate system of payment is much less effective than a piece-rate and may cause a reduction in output amounting to approximately 12 per cent. C. S. R.

PSYCHOSES.

[238] **Psychosis and encephalitis** (Les encéphalites psychosiques ; étude anatomo-clinique).—E. Toulouse, L. Marchand, and P. Schiff. *L'Encéphale*, 1929, xxiv, 413.

The authors furnish a description of a series of cases of acute psychosis in which a condition of acute encephalitis has been found at autopsy. The clinical

form of the psychosis has been variable, being, however, mainly confusional in type. On the pathological side no specific histological feature has characterised the conditions. From the clinical aspect little by way of neurological signs has been present. According to the opinion of the writers the deduction is legitimate that some cases of acute psychosis derive from acute encephalitis caused by different, and as yet unrecognised, pathogenic factors.

J. V.

[239] **Brain changes in dementia praecox** (Les lésions cérébrales dans la démence précoce).—D'Hollander, De Greeff and Ch. Rouvray. *Jour. de neurol. et de psychiat.*, 1929, xxix, 643.

Detailed histological study of the brains in seven fatal cases of schizophrenia showed a striking similarity in the pathological picture. Changes occurred throughout the whole of the cerebrum, brain-stem and cerebellum. Of particular interest were the changes in the meninges, consisting in an intense hyperplasia with lymphocytic infiltrations and endothelial nodules. Vascular alterations were widespread and important; they included areas of hyperplasia shown as plaques of inflammatory angiomatosis on the cortex of the cerebrum and cerebellum, regressive modifications in the blood vessels, with miliary hæmorrhages and perivascular necroses. In addition to all these, the authors also noted alterations in nerve parenchyma and neuroglia as described by numerous other observers.

M. C.

[240] **Circulatory disorders and psychoses** (Kreislaufstörungen und Psychosen). —W. Spielmeyer. *Zeits. f.d.g. Neurol. u. Psychiat.*, 1930, cxxiii, 536.

The author commences his well-illustrated article with a description of the pathological changes in the brain associated with psychoses in the presence of vascular disorders. These include the effects of arteriosclerosis, as well as the occurrence of areas of cortical and subcortical degeneration of cells and fibres produced by local 'bleaching' of the parenchyma apart from obvious vascular disease in their actual vicinity. He next points out the significance of anatomical change of this kind, vascular in type, without disease of vessel-wall or occlusion of lumen. Such alterations are to be found with greater or less readiness in a variety of psychotic states of diverse etiology. Illustrations are furnished of their occurrence in the psychoses of eclampsia, morphinism, pseudo-uræmia, epilepsy, cerebral arteriosclerosis, etc. Yet they are also traceable in other cases unaccompanied clinically by any psychotic manifestation.

The value of such changes from the standpoint of diagnosis is therefore very slight; it resides rather in the fact that disease-conditions which are

fundamentally different both etiologically and clinically cause symptom-complexes whose pathogeneses very closely resemble each other. This general thesis the author elaborates at considerable length.

S. A. K. W.

[241] **The biological syndrome of melancholic conditions** (Le syndrome biologique des états melancholiques).—R. Targowla and A. Lamache. *L'Encéphale*, 1929, xxiv, 166.

This is a review of present knowledge in respect of the 'psychosomatic syndrome' of melancholia, and supplies details of a series of clinical investigations bearing on the neurosympathetic phenomena of that psychosis. The data are rather diverse and cannot be conveniently summarised in abstract. The authors show that the essential feature of this syndrome is inhibition of metabolic change. Neurosympathetic excitability is definitely reduced; endocrine function is defective. Circulatory equilibrium is profoundly modified. These and other disorders accompany the psychosis and disappear as the mental state improves.

J. V.

[242] **Temperament, conflict and psychosis in a stone-age population.**—C. G. Seligman. *Brit. Jour. Med. Psychol.*, 1929, ix, 187.

The population studied, i.e., of that part of Papua known until a few years ago as British New Guinea, is admittedly of an excitable and extrovert disposition. In spite of this and the frequency of suicide, both impulsive and ceremonial, there is no evidence of the occurrence of mental derangement, other than brief outbursts of maniacal excitement, among natives who have not been associated with white civilization. Fatal instances of insanity are cited in which the immediate cause (as evidenced by the history and delusions) was financial responsibility in connections with Europeans. In other instances (non-fatal) the difficulty has been in the religious field. Of late years a series of religious cults has arisen. These are characterized by hysterical dissociation and mass contagion, and in all except one there is evidence of the important part played by the conflict between old and new religious ideas.

C. S. R.

[243] **Mentism** (Le mentisme).—G. Heuyer and A. Lamache. *L'Encéphale*, 1929, xxiv, 325.

The term 'mentism' is not found to any extent in English psychiatric literature. In that of French schools it has been taken to mean 'intellectual effervescence,' 'mental rumination and compulsive reverie,' a 'succession of ideas,' etc. The writer suggests it should be regarded as including the following three notions:

1. A vivid mental presentation, conscious, in the field of imagination.

2. It cannot be called up voluntarily on the one hand, or suppressed by the same agency on the other.

3. It is invariably accompanied by mental disquiet and a state of anxiety.

A series of clinical illustrations from diverse psychopathic states are here recorded, and the admission is made that it may occur in subjects who are practically normal. Among the cases quoted is one of cerebral tumour in which the symptom disappeared after decompression. It is well recognised in an early stage of dementia præcox.

J. V.

PSYCHOPATHOLOGY.

[244] **The sedimentation test and icterus index: a few observations on their uses in a mental hospital.**—HELEN S. E. MURRAY. *Jour. of Ment. Sci.*, 1930, lxxvi, 85.

THE sedimentation test is a sensitive indicator of biochemical changes in the entire organism. It is not a specific test for any one disease, but is found in all conditions in which there is accompanying tissue destruction. As in a leucocytosis, an increased sedimentation reaction always indicates morbidity, but does not localize it. The test is of practical aid in detecting many pathological conditions, especially in dealing with insane and uncooperative patients. It is helpful in determining the diagnosis and progress of both mental and physical diseases, though its use in psychiatric diagnosis is limited. It does not give marked deviations from the normal in functional disturbances of the nervous system, but is modified in the majority of diseases of the central nervous system. Abnormally rapid sedimentation is associated with organic disease, and may be taken to exclude a purely functional disorder such as neurasthenia. It is also useful in the case of a neurotic and complaining patient who may have developed some pathological condition. The technique of the test is simple; it is helpful in determining the progress of mental and physical diseases in addition to the diagnosis and differential diagnosis of many pathological conditions, especially in dealing with the insane, and so is of sufficient practical and clinical value to deserve further attention in mental hospitals.

C. S. R.

[245] **An investigation into the distribution of chlorine in the blood and urine in certain types of mental disorder.**—ROBERT W. ARMSTRONG. *Jour. of Ment. Sci.*, 1929, lxxv, 644.

FOLLOWING on the increased respiratory ventilation after waking in the morning, the normal person shows an increased output of chlorides in the urine. In the psychotic patients examined there is a varying degree of retention of chlorides over the same period associated with a varying degree of defect in respiratory regulation. In katatonic dementia præcox there appears to be a

reversal of the normal shift of chloride from plasma to corpuscle during sleep. Evidence has been adduced to show that there is a heavy acid load on the corpuscles in these patients during the waking state, that their pulmonary ventilation is very inadequate, and that the decrease in metabolic rate during sleep causes a fall in alveolar CO_2 tension and a consequent decrease in the acid load of the corpuscles. In normal persons exercise appears to have no effect on the distribution of chloride between plasma and corpuscles, while in katatonic dementia præcox the same amount of exercise causes a decrease in the acid load of the corpuscles consequent on a decrease in alveolar CO_2 tension. It is suggested that a degree of exercise sufficient to cause increased respiratory ventilation will have a beneficial therapeutic effect on these patients.

C. S. R.

[246] **The incidence of syphilis in admissions to mental hospitals.**—E. G. T. Poynder. *Jour. of Ment. Sci.*, 1930, lxxvi, 107.

In 946 practically consecutive male admissions to Long Grove Mental Hospital, 125 cases gave a positive Wasserman reaction. Of these 125, 87 were diagnosed as general paralytics, two being cases of the congenital type. Thus during the five years under consideration the incidence of general paralysis in male admissions was 9·2 per cent., and that of congenital general paralysis was 0·2 per cent. In the remaining 38 positively-reacting cases, the cerebrospinal fluid gave negative laboratory findings, except in a few cases in which the clinical and laboratory diagnosis was cerebral syphilis. Ignoring general paralysis, the proportion of admissions who had contracted syphilis, as indicated by a positive Wasserman reaction, was 4·4 per cent. Investigation of figures indicates that there has been a progressive fall in the incidence of positive Wassermann serum reactions during the years 1913–1929; there is also a marked fall in the incidence of general paralysis among the admissions examined, but among cases giving positive Wassermann serum reactions the incidence of general paralysis remains about the same.

C. S. R.

[247] **The mental aspect of gynaecological practice, and some notes on the pelvis as a focus of sepsis.**—Muriel Keyes. *Jour. of Ment. Sci.*, 1930, lxxvi, 91.

The writer has in mind individual cases where either pelvic disease, sterility, the thwarted or abnormally active reproductive instinct or involuntary incomplete consummation of marriage (as apart from coitus interruptus) has been accompanied or followed by a degree of mental unbalance. Cases are briefly outlined to illustrate the point. In mental hospitals many parallel cases might be found if only the chain of events in each case could be followed. Sepsis, of dental and other origin, as a possible causal factor in mental or other

ill-health, is now definitely established. Experience shows that although exhaustive searches have been systematically made into every part of the body, yet the female pelvis has often been overlooked.

C. S. R.

[248] **Some cases of mental disorder : A patho-clinical study.**—W. M. Ford-Robertson. *Jour. of Ment. Sci.*, 1929, lxxv, 618.

The writer's observations on some 120 cases lead him to believe that individual or psychotic tendencies, especially if they are strongly hereditary, fail to reveal at all clearly the underlying pathology of the internal environment by ordinary signs and symptoms. Though a fairly definite physical symptomatology may exist, there will come a time when this is finally overshadowed by the masking effects of disordered cerebral function. Focal infection is regarded as of the greatest importance. If in mental disorders special bacteriological methods enable one to associate definite types of focal infection with disordered biochemical functions, and upon treating these conditions by specific and general therapy there is an improvement in the mental and physical condition, we may assume that we have been dealing with factors which we must regard with strong suspicion in possible etiology. In mental disease there is strong evidence that we are dealing with special types of microbic infection superadded to what can be found by ordinary bacteriological methods. Invasion of the tissues by anærobes forms the major part of the bacteriological flora in mental patients. The insane, without doubt, harbour anærobic bacteria of the diphtheroid and lepto-streptothrix group, which not infrequently infect the major part of the alimentary canal. Many of the former are morphologically identical with the Klebs-Lœffler bacillus, but are rarely found except as strict anærobes. The correlation of the biochemical and hæmatological data with the toxic conditions presented shows how variable the response of the individual may be. It must be in some measure dependent on physiological balance, and in mental disorders we must recognize not only somatic, but neuronic resistance.

C. S. R.

[249] **Attacks of periodic insanity with exhalation of a foetid odour in a case of epidemic encephalitis** (Accès de délire périodique avec exhalation d'une odeur fétide dans un cas d'encéphalite épidémique).—J. Handelsman. *Ann. Med.-Psychologiques*, Nov. 1929, No. 4.

The case is that of a youth of 20 who suffered from epidemic encephalitis three years previously, and who eventually developed involuntary movements of the lower maxilla, polydipsia, excessive hunger, and attacks of a hypomanic kind. Examination revealed the characteristic picture of postencephalitic Parkinsonism in moderate degree. The manic seizures passed through an acute phase lasting from a few hours to two days, and were followed by a phase of

equilibrium during which the patient was well oriented, accessible, and not autistic. The stage of excitation was distinguished by its severity and by the almost criminally violent nature of the phenomena—justifying the expression 'rage motrice.' The lucid intervals occupied from one or two days to several weeks. At the outset of the manic periods the pupils dilated, the face became congested and the pulse accelerated; at the same time, the patient commenced to exhale a specific foetid smell from the skin generally, more especially that of the trunk. It did not come from the mouth, and though it resembled that of stale sweat the skin remained entirely dry. On the other hand, towards the end of the attack profuse perspiration always set in, and with it the odour disappeared. In a particularly severe attack, with an intensely fœtid exhalation filling the ward where he was, the patient died. At autopsy the ventricular system was found dilated, especially the third ventricle.

References are given to a number of articles dealing with analogous though not perhaps identical cases, and suggesting that the centre for sweat representation is in the corpus subthalamicum.

J. V.

[250] **The para-catarrhal syndrome.**—T. C. GRAVES. *Jour. of Ment. Sci.*, 1930, lxxvi, 53.

POST-MORTEM examination of cases of mental disorder frequently reveals diseased conditions of the nasal sinuses; all types of inflammatory states have been found, at all ages from adolescence to senility, and associated with many types of mental disorder. To a certain degree it may be said that acute inflammatory processes are associated with the acute phases of the mental disorder. Evidence exists suggesting that infection may pass directly from a diseased sphenoidal sinus to the pituitary gland and hypothalamic region of the brain, the latter containing the head ganglion of the sympathetic nervous system. Many physical symptoms met with in mental disorder are explicable on the basis of toxic disturbance in this region. Case histories of newly admitted patients frequently contain references to nasal catarrh persisting from childhood, associated sometimes with a family history of nasal catarrh, to which considerable importance is attached. Sometimes before the onset of the mental symptoms, the catarrh apparently diminishes, pointing to the deeper extension of the pathological process responsible for it. Examination of the nasal sinuses, shortly after admission, has demonstrated the existence of sinusitis, amounting in the year 1928 to 33 per cent. In many cases, following irrigation, ventilation and drainage, with non-specific protein therapy in some instances, there has been an amelioration of or recovery from the mental and physical symptoms. To illustrate these observations, summaries of a few cases of certified mental disorder are submitted.

C. S. R.

[251] **Depersonalization.**—EMIL GUTHEIL. *Psychoanalytic Review*, 1930, xvii, 26.

DEPERSONALIZATION is a specific reaction to a disturbance of the affective life. It takes place :—

1. When there is an extreme degree of dissociation between the Ego-emotions and It-emotions in individuals who have great natural lability of affect. In consequence, there arises doubt whether, in view of the altered affects, the self really remains the same.

2. When, as consequence of great lability, the Ego-affect and It-affect are projected into the territory of the " I " and the " Thou." The formula of the doubt is here : " Are you the person whom my ' I ' knows, that is, whom I love ; or are you the person who my ' It ' knows, that is, the person whom I hate ? "

3. When there is a profound identification with another person. As a consequence a doubt arises in the patient whether as a result of the altered emotional investment the present self in the critical moment is identical with the former self. To this identification mechanism belongs the incorporation (assimilation) of those persons who had drawn to themselves the love the patient longed for, resulting through the withdrawal of the self-love in an alienation from the self. C. S. R.

[252] **One hundred traffic offenders.**—THEOPHILE RAPHAEL, ALFRED C. LABINE, HELEN L. FLINN and L. WALLACE HOFFMAN. *Mental Hygiene*, 1929, xiii, 809.

IN view of the major problem ' traffic ' has now come to represent, it was felt that a clinical study of a comprehensive series of actual violators might lead to constructive findings. An investigation of 100 English-speaking male offenders who appeared in court was undertaken. The study included a psychiatric and general physical examination of each case, and such investigation as was possible in regard to past history and present circumstances, personal and social ; also enquiry as to matters of significance in relation to traffic problems. The more striking of the findings may be listed as follows :

12 were definitely feebleminded ;
42 were classifiable as of inferior intelligence ;
1 was psychotic or ' insane ' ;
1 showed an active epileptic tendency ;
3 (at least) were seriously handicapped physically. Also 7 showed significant defects in hearing and 14 in vision. Four manifested varying degrees of colour-blindness.
46 were seriously handicapped by alcoholism ;
3 had no licence ;
35 had no insurance ;

25 had no liability insurance ;

2·4 was the median number of previous difficulties ;

13 were acceptable as drivers on a liberal valuation.

From the foregoing it would appear, to the extent that the group may be considered as representative, that an appreciable percentage of the traffic violators who actually came to court are hardly to be deemed adequately competent or safe drivers. Further, it would seem a permissible inference that a certain fraction, although naturally a much smaller one, of the general driving public as well must be so regarded.

C. S. R.

PROGNOSIS AND TREATMENT.

[253] **Intensive antisyphilitic treatment following induced malaria in nineteen cases of general paralysis.**—J. C. Ramsay. *Jour. of Ment. Sci.*, 1930, lxxvi, 82.

The balance of evidence shown in this paper is neither for nor against the use of intensive antispecific therapy (potassium iodide, mercury and tryparsamide) compared with a short course of sulfarsenol as the supplementary routine procedure. The number of cases, however, is small, and it would be a presumption to condemn the treatment before observing the results in a larger series. Possibily better figures might be obtained if the therapy were more protracted, or delayed until the lapse of a longer postmalarial period.

C. S. R.

[254] **Problems of pyretotherapy in paralytic dementia**—H. Wilfred Eddison. *Jour. of Ment. Sci.*, 1930, lxxvi, 66.

In the cases under consideration it was found that changes occurred in the bone-marrow and blood in paralytic dementia, which showed that the leucopoietic functions were impaired and the leucocyte reserve was diminished. In untreated cases there was a definite leucopenia. When leucocytosis was stimulated the intensity of the neutrophilic reaction varied inversely with the stage to which the paralytic dementia had advanced. Under the same conditions the Schilling index rose in direct proportion to the stage of the disease. The rise was most marked in those cases whose decline was accelerated by pyretotherapy, and least marked in those who were benefited. Six to nine months after treatment by the induction of relapsing fever the Schilling index, in favourable cases, was restored to normal limits after having been at a high level before treatment. The better the condition of the patient after treatment, the nearer did the differential leucocyte count and Schilling index approach the normal, and the converse was equally true. The changes

described are referable to affection of the reticulo-endothelial system. It would appear that involvement of the reticulo-endothelium by the syphilitic virus constitutes one of the factors which determine whether a given syphilitic subject will develop paralytic dementia. Since involvement of that system is characteristic of paralytic dementia, it follows that therapeutic measures should take this into account. Pyretotherapy stimulates the resistive action of the reticulo-endothelial system at a time when this function is flagging under the influence of a chronic infection, viz., syphilis.

From the therapeutic point of view the following considerations arise :

1. Malarial therapy should be reserved for those cases in which a satisfactory leucocytic reaction has been obtained by means of a preliminary test with a mild leucogenic agent.

2. In view of the importance of the reticulo-endothelial disturbance, patients who have derived benefit from malarial treatment should reside for a time at a high altitude in order to stimulate erythropoiesis, in the hope that the closely allied function of leucopoiesis will benefit.

3. Prophylactic malarial treatment should be advised for all patients known to suffer from syphilis in whom few, if any, secondary or tertiary lesions have been observed.

C. S. R.

[255] **Non-specific protein therapy in neurosyphilis.**—HARRY GOLDSMITH. *Amer. Jour. of Psychiat.*, 1929, ix, 501.

IN non-specific protein therapy (combined typhoid and paratyphoid vaccine) of cerebral syphilis and paresis, we have an excellent substitute for malarial inoculation. In a series of fifty-five unselected cases treated by this means, results obtained compare favourably with malarial therapy, and appear superior to the other methods of treatment thus far advocated. It is better tolerated, more benign in action, can be given in advanced cases of syphilitic brain disease, and also where malaria is not readily obtainable or is otherwise contra-indicated. The average height of temperature in these cases was 103 degrees ; the highest temperature registered 108 degrees on two successive occasions. The tolerance and reactions of the patient to this therapy are generally good even with injections increased to three billion five hundred million dead bacilli per dose. The secondary anæmia and loss in weight are appreciably less marked than those encountered with malarial inoculations, and the patient's recovery from the effects of the treatment is often very rapid. Serologically, the most striking reduction occurs in the colloidal-mastic or gold curve test. In more than eighty per cent of the cases, modification occurred from a high paretic curve to a negative one. The average reduction however being to a luetic zone curve, varying degrees of modification may also occur in the Wasserman reactions of the blood and spinal fluids. This treatment may be repeated a second or third time at intervals of two or more months with very little or no hazard to the patient. C. S. R.

[356] **General paralysis and its treatment by induced malaria.**—E. T. MEAGHER. *Jour. of Ment. Sci.*, 1929, lxxv, 714.

THE prime object of this report was to ascertain, in cases of general paralysis treated by induced malaria, to what extent life is prolonged and improvement, mental and physical, takes place. Inquiries from those mental hospitals where this treatment was not practised gave the following results: Admissions of general paralytics, 624; deaths, 560 (90 per cent.); in hospital, 52 (8 per cent.); discharged, 12 (2 per cent.). The figures from mental hospitals where malaria treatment was practised were (during the same year, i.e., 1923): Treated, 152; now dead (1927), 71 (45 per cent.); in hospital, 45 (30 per cent.); discharged 36 (25 per cent.).

In analysing the causes of death little doubt is left that malaria is itself a potent factor, as the death rate is exceptionally high in the first and second months—40 per cent. of the total deaths took place in the two months succeedin inoculation. At Vienna Prof. Wagner-Jauregg says that deaths from malaria have ceased to occur, on account of careful cardiac treatment and quinine control.

C. S. R.

[257] **The malarial treatment of general paralysis** (Le traitement de la paralysie générale par l'inoculation du paludisme).—L. PRUSSAK. *L'Encéphale*, 1929, xxiv, 237.

A SOMEWHAT succinct review of recent work on the malarial therapy of general paralysis sets forth the following conclusions:

1. Ten years of experience of the method has proved its superiority to all others.

2. Applied to early cases, excellent remissions can be obtained in no less than 83 per cent. For later cases the percentage is very much less.

3. All forms of the affection are amenable to this treatment, with the exception of the galloping variety. Contraindications include cardiopathy, tuberculosis, persistent thymus, and obesity.

4. Double tertian is the usual clinical form taken by malarial inoculation, and it is easily controlled by quinine.

5. Improvement is confined to mental symptoms; neurological signs do not disappear. Serological improvement is usual, and in the fluid also.

6. The exact mechanism of ameliorating malarial action has not yet been made clear.

J. V.

[258] **Schizophrenia and psychotherapy.**—A. A. BRILL. *Amer. Jour. of Psychiat.*, 1929, ix, 519.

AFTER presenting four psychoanalytic studies of schizophrenic cases, the author concludes that only those acute schizophrenics who cannot be kept at

home should be sent to a sanitorium, and they should only stay there until the acute process subsides. Though that is only possible in few cases, he feels that the ideal hospital treatment should consist of well-trained physicians who would study the patient in the hospital or sanitcrium even while the patient is still in the inaccessible acute stage. Following the acute state, the same physician should treat them psychologically and continue to watch and guide them after they are discharged from the hospital. Such patients require guidance for a long time, perhaps for the rest of their lives.

C. S. R.

[259] **Report of the treatment with manganese chloride of 181 cases of schizophrenia, 33 of manic depression, and 16 of other defects or psychoses at the Ontario Hospital, Brockville, Ontario.**—W. M. ENGLISH. *Amer. Jour. of Psychiat.*, 1929, ix, 569.

THE results showed that a larger percentage of men than of women exhibited both physical and mental improvement, and that though the discharge list from hospital oversight—21 in number—was not high, yet the general welfare of the patients was much improved and the majority of them were able to be 'up and about.' Some were enabled to engage in useful employment.

C. S. R.

Reviews and Notices of Books.

Epidemic Encephalitis: Report of a Survey by the Matheson Commission. New York: Columbia University Press; London: Oxford University Press. 1929. Pp. 849. Price 15s. net.

THIS Report on the perennial subject of epidemic encephalitis deals solely with three of its chief aspects, viz., etiology, epidemiology, and treatment. In respect of the first of these, a good discussion is given of rival theories of causation, of which three have at one or other time been favoured: (1) the toxic theory; (2) the theory of bacterial origin; (3) that of filtrable virus derivation. A detailed historical survey leads to the conclusion that "the etiological agent of epidemic encephalitis has not yet been definitely demonstrated."

Treatment is summarised in a series of critical paragraphs examining a great number of therapeutic claimants, and Hall's opinion is quoted, apparently with approval: "the verdict on the whole is that, at present, any reliable therapeusis, either for the disease itself or for its many after-results, does not exist."

Epidemiology is handled at considerable length and the data here collected are of much general interest. The Commission seemingly is willing to include Cruchet's cases of 1915 and 1916 notwithstanding Economo's dismissal of them from the category. It is always difficult if not impossible to say when a given epidemic begins, especially when uncertainty exists as to what to include and what to refuse. The Commission has not, we think, considered the point adequately that any 'encephalitis' will occasion symptoms in one or other respect analogous to those of the epidemic variety; hence scrutiny of the literature will reveal a series of clinical or clinicopathological case-links going back indefinitely beyond 1915. Why assert that "the first recorded cases of this epidemic" came from Roumania in the spring of 1915, described as "encéphalite hémorrhagique avec un diplocoque encapsulé"? Here surely is neither pathological nor nosological specificity.

The bibliography is the most remarkable feature of a book whose format and soft black leather cover are unusual for scientific publications. It

contains many thousands of references, fills more than 400 pages, and is excellently arranged and indexed.

The Cerebellum. Vol. VI of the Reports of the Association for Research in Nervous and Mental Disease. With 220 illustrations and 24 tables. Baltimore: Williams & Wilkins Co. London: Baillière, Tindall & Cox. 1929. Pp. 649.

To this handsomely printed and illustrated volume dealing with recent advances in our knowledge of the cerebellum and its functions more than 30 writers have contributed. A long article on the comparative morphology of the arbor vitæ and folial pattern of the mammalian cerebellum comes from the pen of Dr. H. A. Riley, whose work is based on the examination of some 37 different animals, ranging from the kangaroo to man. Dr. L. Hausman deals with the same subject in respect of vermis, cerebellar nuclei, and vestibular mass. A minute histological study of proprioceptor organs is made by Dr. A. Elwyn. Other morphological papers are devoted to the membranous labyrinth and to the 'lateral line organs.' The physiological and experimental investigation of the cerebellum includes a number of important communications; and cerebellar pathology, localisation, and symptomatology are also examined.

The general level of these manifold researches is high, and the additions they make to cerebellar doctrine rather impressive; but we confess to have read with greatest profit the introductory chapter by Dr. Oliver Strong entitled "Unsolved Problems suggested by Cerebellar Connections and Cerebellar Histology." A book of this character requires an editor or some one else to furnish the reader with a study in synthesis, for the papers are printed without any hint of their united bearing on matters still sub judice. In a word, they are dissociated, if complete in themselves, and their place in the cerebellar setting is not at all made clear. However, for those already to some extent familiar with cerebellar problems the volume will amply repay perusal, and the Association for Research deserves congratulations on the results of their investigations.

The Intracranial Pressure in Health and Disease. Vol. VIII. Proceedings of the Association for Research in Nervous and Mental Disease. Baltimore: Williams & Wilkins Company; London: Bailliere, Tindall & Cox. 1929. Pp. 510. Price 27s.

THE 1927 meeting of the Association for Research in Nervous and Mental Disease was devoted to the subject of intracranial pressure and the proceedings are now published in a volume to which some forty workers have contributed

and which contains 181 illustrations and 33 tables. Among these articles, which deal with every aspect of a wide question, attention may be directed to those concerned with cerebrospinal fluid pressure adjustment, hydrocephalus, relation of raised intracranial pressure to convulsions, to papilloedema, to visual field defects and brain changes. The increase associated with brain tumours and other expanding lesions is fully investigated, while a series of communications examine the important subject of methods for its reduction.

Taken as a whole, this symposium more than maintains the high standard of some of its predecessors, and should be in the hands of all neurologists who wish to keep abreast of present-day knowledge. The information it contains is derived from widely scattered sources but also includes much of direct personal observation and experiment. There are numerous bibliographical references and a satisfactory index.

Possession, Demoniacal and Other. By T. K. Oesterreich, Professor at the University of Tübingen. London: Kegan Paul. 1930. Pp. 400. Price 21s. net.

Professor Oesterreich has dealt with a fascinating subject in a dispassionate way. With no apparent prejudice or prepossession, he has examined the records, ancient and modern, of cases taken to signify the indwelling of a spirit or demon in the person concerned, and the tale he unfolds is sometimes fantastic, often ludicrous, sometimes almost pathetic. It need scarcely be pointed out that he is compelled, on the evidence, to repudiate the claims of those who see in the phenomena proof of actual possession of the subject by a second, separate, personality; exact analysis shows that "the states of mind apparently belonging to a second ego are really a part of the original individual." Such a conclusion, naturally, will not placate those who approach the problems of possession with preconceived ideas derived from dogma or imagination. The obvious resemblance of many of the recorded 'clinical' symptoms to those of hysteria requires no insistence. The author, however, makes several reservations in this respect, although we do not find ourselves in accord with him. He declares that the diagnosis of hysteria for a case of possession "would only be justified if previous hysterical symptoms had existed"; on the contrary, there is no reason why hysteria should not thus commence its manifestations. He does not appear to have considered sufficiently the occurrence of monosymptomatic hysteria; it is useless to expect "all the symptoms" (whatever that may mean) of the *grande névrose* in order to make a firm diagnosis, or to discard that explanation of phenomena in the absence of a "typical complex of symptoms." Of the part played by imitation and suggestibility full appreciation is expressed.

In view of the cautious and sane scientific attitude of mind of which the author gives many proofs throughout the pages of this remarkably learned and

richly annotated volume, we confess it is with some surprise that we find in an appendix on parapsychology reliance on the Piper case for the establishment of parapsychic phenomena "with complete certainty," and for the statement that a purely negative position "is frankly no longer possible to-day." He seems to be unaware of the criticisms of, for example, Dr. Ivor Tuckett, whose deliberate conclusion is that "probability is least strained if we explain Mrs. Piper's powers by a combination of chance and skill rather than by telepathy or 'spirit-control.'"

The Internal Secretions of the Ovary. By A. S. PARKES, Ph.D., D.Sc., Beit Memorial Research Fellow, University College, London. With illustrations. London: Longmans, Green & Co. 1929. Pp. 242. Price 21s. net.

THE major portion of the monograph by Dr. Parkes is given up to a full discussion of the ovarian hormones, of which it is declared with confidence that two, and probably three, exist. Among these the œstrus-producing hormone takes first place. That it alone should be responsible for the three general functions of the ovary, endocrinologically considered, seems unlikely; these are (1) control of development of accessory organs and secondary sexual characters; (2) control of the œstrus cycle; (3) control of changes occurring during pregnancy. A long account is furnished of methods for the separation and identification of œstrin, and of its effects from the viewpoint of experimental pharmacology and physiology. Reaching the conclusion that the ovary cannot regulate its own periodicity, Dr. Parkes next examines the relations between it and the anterior pituitary, and by a process of exclusion comes to the decision that a cyclic endodrine activity exists in the latter, even if only one substance is produced. The functions of the corpus luteum appear to embrace inhibition of ovulation, sensitization of uterus for implantation of fertilized ova, development of mammary glands, and maintenance of pregnancy.

The author is extremely cautious in his application of physiological data to clinical problems, and remains obviously sceptical in respect of unscientific and irrational employment of ovarian extracts for clinical conditions. A fine bibliography completes a valuable review of present-day knowledge, well arranged and logically set forth.

Die Neuropathologischen Syndrome. By Dr. M. KROLL, Professor and Director of the Neurological Clinic, University of Minsk, White Russia. With 216 illustrations. Berlin: Julius Springer. 1929. Pp. 554. Price Mk. 48.

PROFESSOR KROLL has written a fine book on nervous semiology, beautifully printed and illustrated, and distinguished by its modern outlook.

It follows more or less usual lines in dealing with motor and sensory syndromes, and with topographical descriptions of symptoms referable to different parts of the brain, cord, and peripheral nerves. Syndromes concerned with disorders of cerebral circulation are annotated, as well as those of spinal compression, and rise of intracranial pressure. It is satisfactory to see epilepsy referred to as a syndrome. Angioneurotic and endocrine disorders are not forgotten. All this, and much more, is well written and clearly expressed; controversies are eschewed but difficulties and uncertainties do not fail to be noted.

The work compares favourably with existing text-books on the same subject; on the clinical side its modernity is shown by paragraphs on chronaxy, encephalography, Magnus and de Kleijn reflexes, etc., and its multum in parvo character abundantly illustrated throughout; the pathological aspect however is much more sketchy, though doubtless conforming to the author's intention. Although the numerous references to the work of other writers furnishes proof of his catholicity the reader will regret the complete absence of any bibliographical index.

Der Aufbau der Funktionen in der Hörsphäre.—By Dr. WALTER BORNSTEIN, Frankfurt. Berlin: S. Karger. 1930. Pp. 126. Price Mk. 9.60.

DR. BORNSTEIN has in this brochure given the neurologist an excellent study of the relation of the organ of hearing to the auditory cortex. It discusses eruditely problems of both clinical and scientific interest, to one or two of which allusion may be made.

No separate centres exist in the auditory convolutions for tone qualities ('clearness,' 'volume,' etc.), or for variations in pitch. The fibre-paths leading to these cortical centres are not differentiated for any specific aural functions. When the transverse gyri of Heschl are injured in one or both hemispheres the rest of the auditory cortex assumes their function but in lessened degree; there is a concentric restriction of the auditory field. The sphere of hearing is divisible into two parts; the first is the 'acoustic primitive field,' and the second that for appreciation of the forms of speech and of music. Above these, in a physiological sense, is the frontal lobe—the highest level sensorimotor reflex station. Varieties of amusia and of so-called auditory (sensory) aphasia can be understood best as produced by interruptions of paths between the former and the latter.

The monograph is well written, full of information, and contains a sufficiency of bibliographical references.

Die Psychischen Reaktionsformen. By Dr. HARRY MARCUSE, Berlin. Berlin: S. Karger. 1929. Pp. 262. Price Mk. 22.

THIS volume deals with the form of psychical reactions, as opposed to or contrasted with their content. Reaction type embraces both form and content. More specifically, by reaction form is meant the psychodynamic proportion between the various (psychical) energies in a given reaction, derived from various stages of development. After discussion of the bearing of these generalities on the psychical constitution of the individual, this latter is considered capable of division into three types: (1) persons with reactions of normal strength—normal persons; (2) those with weak reactions—feeble-minded; (3) those with reactions above normal in strength—persons of talent and genius. According to the author it is permissible to differentiate two kinds of psychical energy, that of psychogenic and that of somatogenic origin, each of which provides its share in the total intensity of the energy; hence the following classification is suggested (where I stands for intensity, P and S for psychogenic and somatogenic respectively):

1. I = normal, P<S Hysterical subjects.
2. I = normal, P>S Weakminded.
3. I <normal, P>S Imbeciles, idiots.
4. I >normal, P<S Talent, genius.

On these lines the rest of the book is devoted to pathological psychogenic reaction forms (hysteria, etc.), and pathological somatogenic reaction forms (psychoses, paranoia, etc.). Chapters follow on hypnosis, psychotherapy, simulation, dreams, and on the relation between cultural development and reaction form. The whole book is readable and suggestive.

Innere Sekretion und psychische Prozesse. By Dr. W. N. SPERANSKI, Leningrad. Berlin: S. Karger. 1929. Pp. 150. Price Mk. 12.

THE general thesis of this discursive and rather unconvincing book is that 'Hormono-reflexology' should take the terminological place of 'psychology.' Unimpressed by the hybrid cumbersomeness of the former, the writer contends that it represents the trend of present-day research in biology. The personality of the individual is made up of the sum of the influences of the 'hormone-building' organs; these, combined with blood chemical factors otherwise, affect and determine neural and psychical activity, and the character and intensity of motor conduct. An attempt is made to analyse the effect, at any given moment, of hormones on the evolutionary action of reflex arcs, inclusive of those of the highest level. We are told that in addition to hormones in the ordinary physiological sense the blood contains 'emotiogenic derivatives' which come from these hormones—called therefore 'Em-hormones'; moreover, it also contains 'other substances' (not, so far as we can see, specified), which possess 'emotiogenic properties.' With these and other speculations

for a start, the author proceeds to develop a theory of psychical activity not entirely distinguishable from views recently expressed by Pavlov, according to which, for example, hysteria is a series of reflex reactions determined by em-hormones. Schizophrenia and analogous psychotic states are described as 'emotional ataxias.' It is questionable whether the study of these various affections can be furthered by attributing them to factors the very existence of which is dubious.

Les Ultravirus et les Formes Filtrantes des Microbes. By Dr. P. HAUDUROY, Préparateur in the Faculty of Medicine of Paris. Paris: Masson et Cie. 1929. Pp. 392. Price 40 fr.

THE subject of inframicrobic life and activity being at present one arousing vigorous research and discussion, Dr. Hauduroy's book appears opportunely. It deals seriatim with the affections attributed to such agents in man and the lower animals, not omitting plants, insects, fishes and birds. This conspectus helps admirably to widen the horizon of those whose work or inclinations lead them to consider solely mammalian and human problems. Then follows a highly technical description of filtration methods and results. More interesting chapters for the neurologist are devoted to questions of physiology, immunology, and epidemiology.

In the second part of the book controversial topics dealing with filtrable forms of Koch's bacillus and of spirochætes, inter alia, are approached in a scientific spirit, and points of, it may be, great importance appear to emerge.

The tentative character of some of the author's conclusions bear witness to the way in which he suspends judgment till more light is thrown on his subject, but no one can peruse the work without being impressed by its erudition or being informed by its patiently collected observational and experimental data.

Études sur les Maladies Familiales Nerveuses et Dystrophiques. By O. CROUZON, Physician to the Salpêtrière. Paris: Masson et Cie. 1930. Pp. 385. Price 55 fr.

Dr. O. CROUZON has put neurologists in his debt by presenting for their consideration and study a remarkably complete description of familial (as opposed to hereditary) nervous disease not merely in its well-known but also in its rarer and more obscure aspects. Naturally here are to be found accounts of moderately common conditions such as Friedreich's disease, family spastic paraplegia, the muscular dystrophies and a number of others equally definite; yet the interest of rarities which include familial nystagmus, ophthalmoplegia, cleidocranial dysostosis, and so forth is undeniable. Attention is also directed to affections which prove exceptionally to have a familial character (tabes, disseminated sclerosis, Recklinghausen's disease and others). On both clinical

and pathological sides the details supplied seem satisfying descriptively, however elusive the core of the general problem remains. The author makes tentative application of Mendelian laws to the questions raised by these family affections, which are as often atypical as typical, without being able to reach any settled conclusion.

La Maladie de Friedreich. By P. Mollaret, Chef de Clinique at the Salpêtrière, Paris. Paris: A. Legrand. 1929. Pp. 308. Price not stated.

DR. MOLLARET'S attractive monograph on Friedreich's disease is based on study of no less than 21 cases, and presents a very complete review of its purely clinical side, inclusive of its history on the one hand, and the uselessness of therapy on the other. What appeals to us who are familiar with the matter is the disinclination of the author to assert the specificity of the disease, and his obviously reasonable attitude of refusal to separate it categorically from other spinocerebellar or cerebellar heredofamilial affections, in particular the cerebellar heredo-ataxia of Pierre Marie. He suggests use of a comprehensive term—"herédo-dégéneration spino-cérébelleuse." We are promised further contributions from him dealing with the pathological side of the subject.

Paralysie Générale; les Traitements Modernes. By A. SÉZARY and A. BARBÉ, Paris. Paris: G. Doin et Cie. 1930. Pp. 35. Price 8 fr.

PRESENT-DAY developments in the treatment of general paralysis have become so pronounced as to render possible the appearance of books and brochures dealing solely with that subject. For the moment, malarial therapy is most popular, though arsenical methods, e.g. the employment of tryparsamide, are not far behind in vogue. This slender communication deals more especially with the French stovarsol, for which excellent results are claimed, and with malarial technique. A comparison and contrast of the two seem unquestionably to favour the former.

Traitement des Affections Neuro-cutanées. By E. JUSTER, Assistant at the Hôpital Saint-Louis, Paris. Paris: Masson et Cie. 1929. Pp. 126. Price 14 fr.

OF interest to the neurologist are the trophoneuroses and neurodermatoses because of their etiological obscurity and degree of intractability. Raynaud's disease, acroparaesthesia, acrodynia, erythromelalgia, sclerodermia, facial hemiatrophy, trophœdema, lipodystrophia, etc., here receive brief description and summary from a therapeutic standpoint.

Psychology. By JOHN H. EWEN, M.R.C.S., L.R.C.P., Assistant Medical Officer, Surrey Mental Hospital. (Catechism Series). Edinburgh : E. and S. Livingstone. 1929. Pp. 72. Price 1s. 6d.

A SMALL pocket book dealing by the question and answer method with psychology and restricted to a few scores of pages can contain only the mere bones of a corpus doctrinæ and scarcely requires any criticism. It may serve for examination purposes of an elementary kind, and within its self-imposed limits doubtless may be considered to have attained a certain level of accurate exposition. More academic than clinical or practical, the book deals at equal length with Hipp's chronoscope and Freud's theory of dreams, with Mosso's ergograph and language.

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